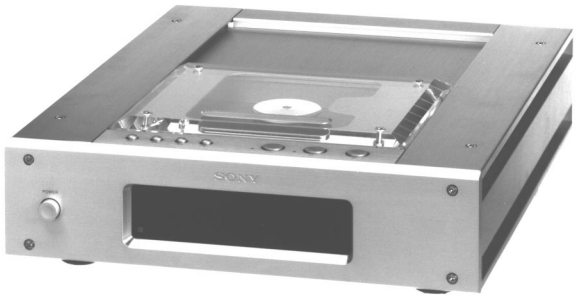
CDP-X5000

SERVICE MANUAL

AEP Model
UK Model
E Model
Chinese Model



Model Name Using Similar Mechanism	NEW
Base Unit Type	BU-12A
Optical Pick-up Type	KSS-274A/J-N

SPECIFICATIONS

Compact disc player

Laser Semiconductor laser (λ = 780 nm)
Emission duration: continuous

Laser output Max 44.6 µW*
* This output is the value measured at a distance of 200 mm from the objective lens surface on the Optical Pick-up Block with 7 mm aperture.

Wavelength 780 – 790 nm

Frequency response 2 Hz to 20 kHz ± 0.3 dB

Dynamic range More than 100 dB

Channel separation More than 100 dB

Harmonic distortion Less than 0.003%

Outputs

	Jack type	Output level	Load impedance
LINE OUT	Phono jacks	2.5 V (at 50 kilohms)	Over 1 kilohm
DIGITAL OUT (COAXIAL)	Coaxial output connector	0.5Vp-p (75 ohms)	75 ohms
DIGITAL OUT (OPTICAL)	Optical output connector	–18 dBm (Wave length: 660 nm)	
DIGITAL OUT (BALANCED)	XLR-3-32	5 V (at 50 kilohms)	Over 100 ohms

General

Power requirements 220 V – 230 V AC, 50/60 Hz

Power consumption 18 W

Dimensions (approx.) (w/h/d) 280 × 90 × 370 mm ($11 \times 3\ ^{9}/_{16} \times 14\ ^{9}/_{16}$ in.) incl. projecting parts

Mass (approx.) 6 kg (13 lbs 4 oz)

Supplied accessories

Audio connecting cord (1)
Remote commander (remote) (1)
Sony SUM-3 (NS) batteries (2)
Stabilizer (1)
Felt (1)
Mains lead (1)

Design and specifications are subject to change without notice.

MICROFILM

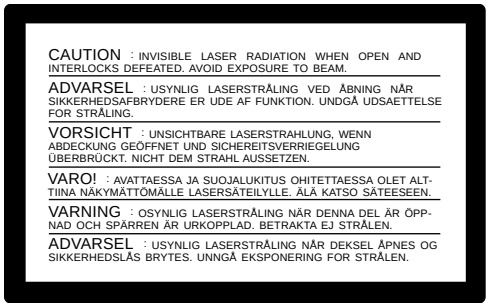
COMPACT DISC PLAYER

SONY®

CAUTION
Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

The laser component in this product is capable of emitting radiation exceeding the limit for Class 1.

This appliance is classified as a CLASS 1 LASER product. The CLASS 1 LASER PRODUCT MARKING is located on the rear exterior.


CAUTION : INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCKS DEFEATED. AVOID EXPOSURE TO BEAM.
ADVARSEL : USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSAETTELSE FOR STRÅLING.
VORSICHT : UNSICHTBARE LASERSTRAHLUNG, WENN ABDECKUNG GEÖFFNET UND SICHEREITSVERRIEGELUNG ÜBERBRÜCKT. NICHT DEM STRAHL AUSSETZEN.
VARO! : AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.
VARNING : OSYNLIG LASERSTRÅLING NÄR DENNA DEL ÄR ÖPPNAD OCH SPÄRREN ÄR URKOPPLAD. BETRAKTA EJ STRÅLEN.
ADVARSEL : USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES OG SIKKERHEDSLÅS BRYTES. UNNGÅ EKSPONERING FOR STRÅLEN.

This caution label is located inside the unit.

Notes on chip component replacement
- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

Flexible Circuit Board Repairing
- Keep the temperature of soldering iron around 270˚C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ! ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

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SECTION 1
SERVICING NOTE

NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

The laser diode in the optical pick-up block may suffer electrostatic break-down because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.
During repair, pay attention to electrostatic break-down and also use the procedure in the printed matter which is included in the repair parts.
The flexible board is easily damaged and should be handled with care.

NOTES ON LASER DIODE EMISSION CHECK

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe from more than 30 cm away from the objective lens.

LASER DIODE AND FOCUS SEARCH OPERATION CHECK

Carry out the “S curve check” in “CD section adjustment” and check that the S curve waveform is output three times.

WRITING OF FOCUS/TRACKING AUTO GAIN DATA

General CD palyers using digital servo ICs automatically adjust the focus/tracking gain each time the disc is changed.
In this unit, the gain of the standard disc (YEDS-18) is written in the non-volatile memory (IC203:X24C01S) of the servo board so that the gain need not be re-adjusted when changing discs.
Therefore, if the servo board, IC203 of the servo board, or optical pick-up has been replaced, be sure to write the auto gain data.

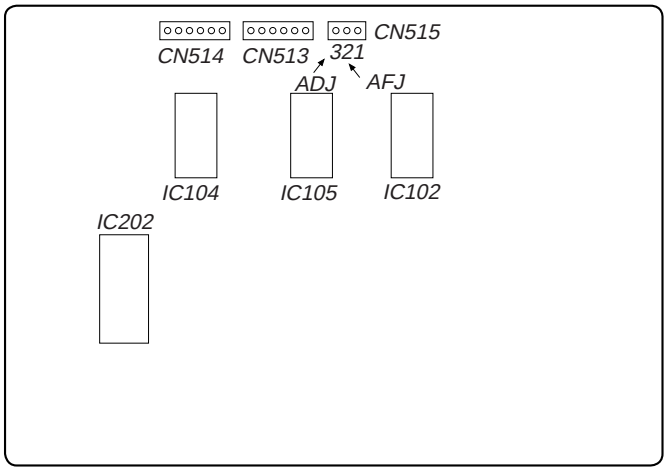
1. Connect TP (ADJ: Pin ③ of CN515) to GND (Ground), and turn ON the POWER switch.
2. Insert the test disc (YEDS-18). (The TOC data of the disc will be read.)
   This memorizes the auto gain data of the test disc.

Note:
- If the disc is replaced without turning OFF the power, the auto gain data of the last disc inserted will be memorized.
- If the POWER switch is turned ON without connecting TP (ADJ) to GND, the auto gain data will not be memorized when the disc is inserted, and the data memorized the last time will be taken as the focus/tracking data.

FLUORESCENT INDICATOR TUBE FULL LIGHTING MODE

1. Connect TP (AFJ:Pin ② of CN515) to GND (Ground), and turn ON the POWER switch.
2. The bridge check (check for short-circut between pins of the S RAM (IC202 of the servo board)) is performed, and all the FL tubes light up if there is no bridge.
3. When a key other than the ■(stop) key is pressed, the corresponding FL tubes lights up.
   Each time the ■(stop) key is pressed, all the FL tubes light up.

[SERVO BOARD] — Conductor Side —

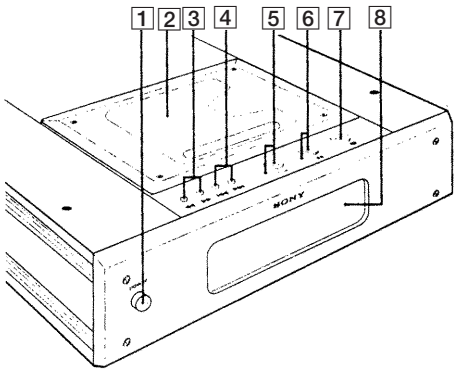


SECTION 2
GENERAL

This section is extracted from instruction manual.

LOCATION OF PARTS AND CONTROLS

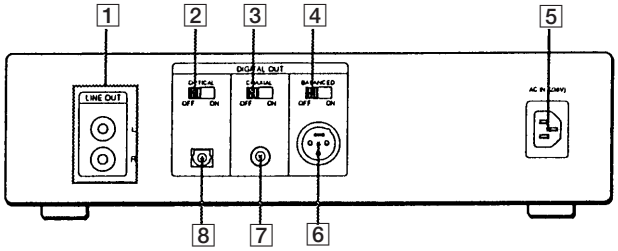
UNIT OPERATION BLOCK



1 POWER switch
2 Disc lid
3 ◀◀/▶▶ (fast forward/ fast rewind) buttons
4 I◀◀ /▶▶I buttons (*AMS)
5 ▷ (play) button/lamp
6 II (pause)button/lamp
7 ■ (stop)button
8 Display window

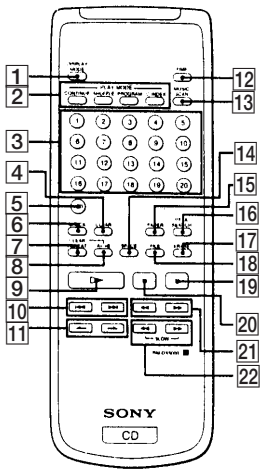
*AMS is the abbreviation of Automatic Music Sensor.

REAR PANEL



1 LINE OUT
2 DIGITAL OUT OPTICAL switch
3 DIGITAL OUT COAXIAL switch
4 DIGITAL OUT BALANCED switch
5 AC IN (230V)
6 DIGITAL OUT BALANCED
7 DIGITAL OUT COAXIAL
8 DIGITAL OUT OPTICAL

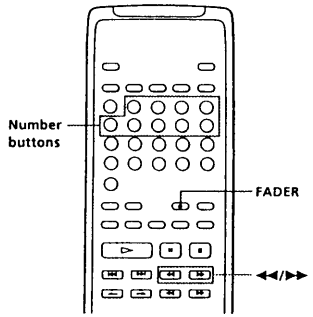
REMOTE COMMANDER (RM-DX5000)



1 DISPLAY MODE button
2 PLAY MODE buttons
CONTINUE button
SHUFFLE button
PROGRAM button
C.INDEX button
3 Number buttons (1-20)
4 CLEAR button
5 >20 button
6 CHECK button
7 REPEAT button
8 A↔B button
9 ▷(play) button
10 I◀◀ /▶▶I (*AMS) buttons
11 ◀▬/▬▶(index search) buttons
12 TIME button
13 MUSIC SCAN button
14 SPACE button
15 FADER button
16 PEAK SEARCH button
17 ERASE button
18 FILE button
19 ■ (stop) button
20 II (pause) button
21 ◀◀/▶▶ (fast forward/ fast rewind) buttons
22 ◀◀/▶▶ SLOW buttons

Fading In or Out

You can manually fade in or out to prevent tracks from starting or ending abruptly.
Note that you cannot use this effect when using the DIGITAL OUT connections.



To	Press FADER
Start play fading in	in pause mode. "FADE" flashes and play fades in.
End play fading out	when you want to start fading out. "FADE" flashes. The play fades out and the player pauses.

Changing the fading time

You can change the fading time from 2 to 10 seconds before fading in or out. If you don't change it, fading lasts for 5 seconds.

1 Press FADER on the remote before you start playing.
"5 SEC" appears and "FADE" flashes in the display.

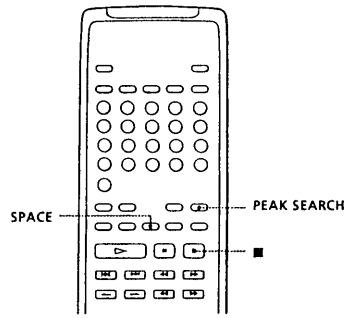
2 Press the number button (2 - 10) to specify the fading time.
(Or press ◀◀ or ▶▶ repeatedly until desired time is displayed.)

Notes

- The fading time remains even when you turn off the player.
- When you use the Custom File function (page 18), the fading time is memorized for each disc.

Useful Tips for Recording

Using these functions makes recording CDs more convenient.



Adjusting the Recording Level (Peak Search)

The player locates the highest level among the tracks to be recorded to let you adjust the recording level before you start recording.

1 Before you start playing, press PEAK SEARCH on the remote.
"PEAK" flashes in the display and the player repeats the portion of the highest level for about four seconds.

2 Adjust the recording level on the deck.

3 Press ■ on the player to stop Peak Search.
"PEAK" disappears from the display.

Note

The portion with the highest level may differ every time you try the adjustment on the same disc. The difference is, however, so slight that you should not have any problem in adjusting the recording level precisely.

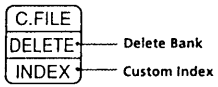
What You Can Do With the Custom Files

The player can store 2 types of information called "Custom Files" for each disc. Once you have stored Custom Files for a disc, the player automatically recalls what you have stored whenever you insert the disc. Custom Files will be remain in memory even if you don't use the player for about 1 month.

You can store this information:

When you use	You can
Custom Index (page 19)	Index the disc at up to 8 points (for a disc with 32 tracks or less) or 5 points (for a disc with over 32 tracks)
Delete Bank (page 20)	Delete unwanted tracks and store only the tracks you want

The Custom File indication lights up when you store the corresponding information.



When you store a Custom File for a disc, the player remembers how you played that disc last time even if you removed the disc from the player (last mode memory). When you insert the same disc again, therefore, the player plays in the same play mode. The player also remembers the duration of fade in/out time if you've changed the time.
Note that if you start playback by pressing ▷ and then closing the disc lid, the player plays in the currently selected play mode instead of the stored one.

Where are Custom Files stored?

Custom Files are stored in the player's memory, not on the disc. This means you cannot use the Custom File when you play the disc on other players.

How many discs can you file?

You can file up to 224 discs in the Custom File.
Note that the player counts a disc as two when you store a Custom Index and Delete Bank at the same time.

You can check how many discs you can file

1 Remove the disc from the player.
2 Close the disc lid.
3 Press TIME while the music calendar is not being displayed.
The number of Custom Files you can file appears in the display.

Erasing Custom Files

If the memory for Custom Files becomes full, the player displays "FULL." when you press FILE to store information and you cannot store any more disc information. If necessary, erase the Custom Files as follows:

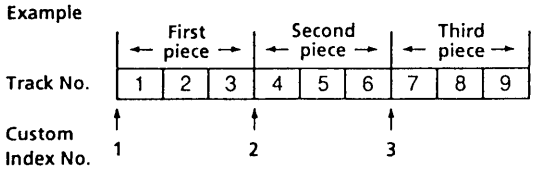
To erase all Custom Files of all discs

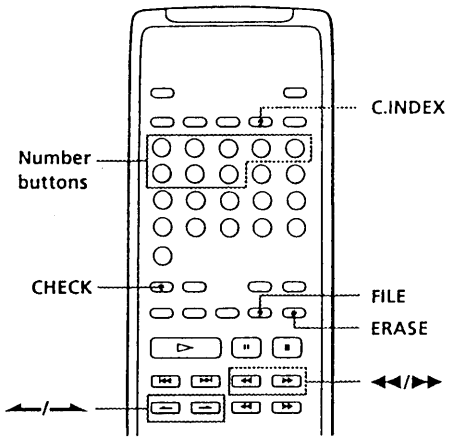
While holding down ◀◀ and ■, press POWER to turn on the player. "AL-CLr" appears in the display and all the custom files will be erased.

Indexing a Disc (Custom Index)

You can index a disc at up to 8 points (for a disc with 32 tracks or less) or 5 points (for a disc with over 32 tracks) so that you can easily locate a desired point. This might be useful when you play discs of symphonies or concertos that divide one piece into several tracks (see the example below).

Example





1 Place a disc.

2 Press C.INDEX on the remote.
"CUSTOM INDEX" appears in the display.
The music calendar disappears.

3 Press FILE at the point you want to index.
The Custom Index number flashes in the display.
The player repeats the portion for 3 seconds from the point to be indexed.

4 Press ◀◀ or ▶▶ to adjust the point so that the player repeats from the exact point you want to index.
Pressing these buttons 7 times moves the point by about 1 second ahead or behind.

If you don't want to index at the point
Press CLEAR and search another point to be indexed.

5 Press FILE again to store the Custom Index.
"INDEX" in the Custom File indication lights up in the display.

6 To mark more Custom Indexes, repeat Steps 3 to 5.

When you've already decided where to index
You can directly mark an index without adjusting the point. When you find the point to be indexed, first press ⏸ to pause playing and press FILE to mark an index.
"INDEX" appears in the display.

Playing from an indexed point (Custom Index Play)

1 Press C.INDEX on the remote.
"CUSTOM INDEX" appears in the display.

2 Locate the Custom Index you want as follows:

To locate	Press
The next Custom Index	—▸ during playback
The current Custom Index	◂— during playback
A specific Custom Index directly	Number button of the Custom Index
By scanning the indexed points for 10 seconds	MUSIC SCAN in stop or play mode. When you find the point you want, press ▷ to start playing.

Playback starts from the selected Custom Index to the end of the disc.

To cancel the Custom Index Play
Press CONTINUE on the remote.

Notes
- You cannot use the index search function (see page 10).
- Use ◂—/—▸ buttons to locate the next or the current Custom Indexes, instead of ⏮/⏭ buttons.

Playing from one index to the next one (Custom Index Single Play)
1 Press C.INDEX on the remote.
"CUSTOM INDEX (1)" appears in the display.
2 Press the number button of the Custom Index you want.
Playback starts from the selected Custom Index and stops at the beginning of the next index.

To cancel the Custom Index Single Play, press C.INDEX on the remote).

You can play the portion between two indexes repeatedly
Press REPEAT.

Erasing the Custom Index

1 Place a disc.

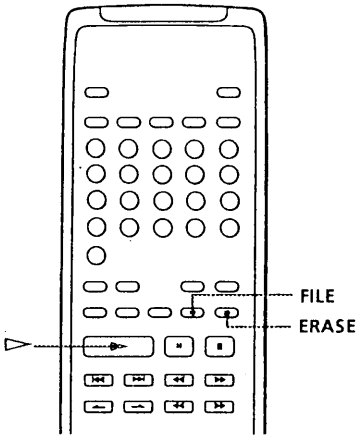
2 Press C.INDEX.
"CUSTOM INDEX" appears in the display.

3 Press CHECK repeatedly until the Custom Index number you want to erase flashes.

4 Press ERASE while the number is flashing to erase the Custom Index.
The succeeding Custom Index numbers decrease by one.

Storing Specific Tracks of a Disc (Delete Bank)

You can delete unwanted tracks and store only the tracks you want. This allows you to start playing your favourite tracks without deleting the other tracks each time you insert the CD.



1 Place a disc.

2 Delete tracks you don't want.
Follow Steps 1 to 3 in "Playing Only Specific Tracks" on page 13.

3 Press FILE on the remote to store the remaining tracks.
"DELETE" in the Custom File indication lights up in the display.

Playing using the Delete Bank

1 Press CONTINUE.
The Delete Bank is recalled and the selected track numbers appear on the music calendar.

2 Press ▷ to start playing.

To cancel playing using the Delete Bank
Press ■.

To start playing using the Delete Bank again
When "PROGRAM" or "CUSTOM INDEX" appear in the display, press CONTINUE or SHUFFLE repeatedly until these indications disappear from the display. The Delete Bank is recalled and you can start playing by pressing ▷.

You can play in a random order using the Delete Bank
In Step 1, press SHUFFLE on the remote repeatedly until "SHUFFLE" appears in the display.

Erasing the Delete Bank

1 Place a disc.

2 Press CONTINUE or SHUFFLE.
The display shows the stored Delete Bank.

3 Press ERASE to erase the Delete Bank.
"DELETE" in the Custom File indication disappears.

Precautions

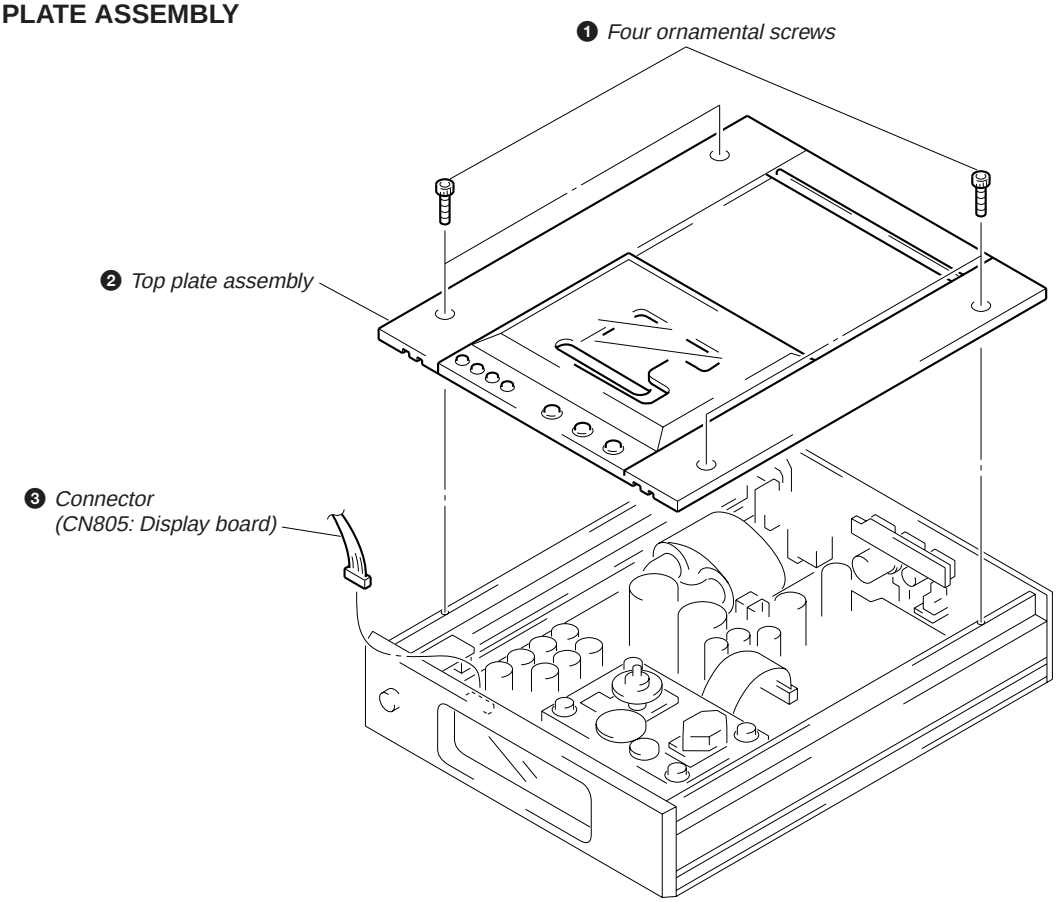
On using the stabilizer

- Be sure to use the supplied stabilizer. If you use any other stabilizer, you may damage the player.

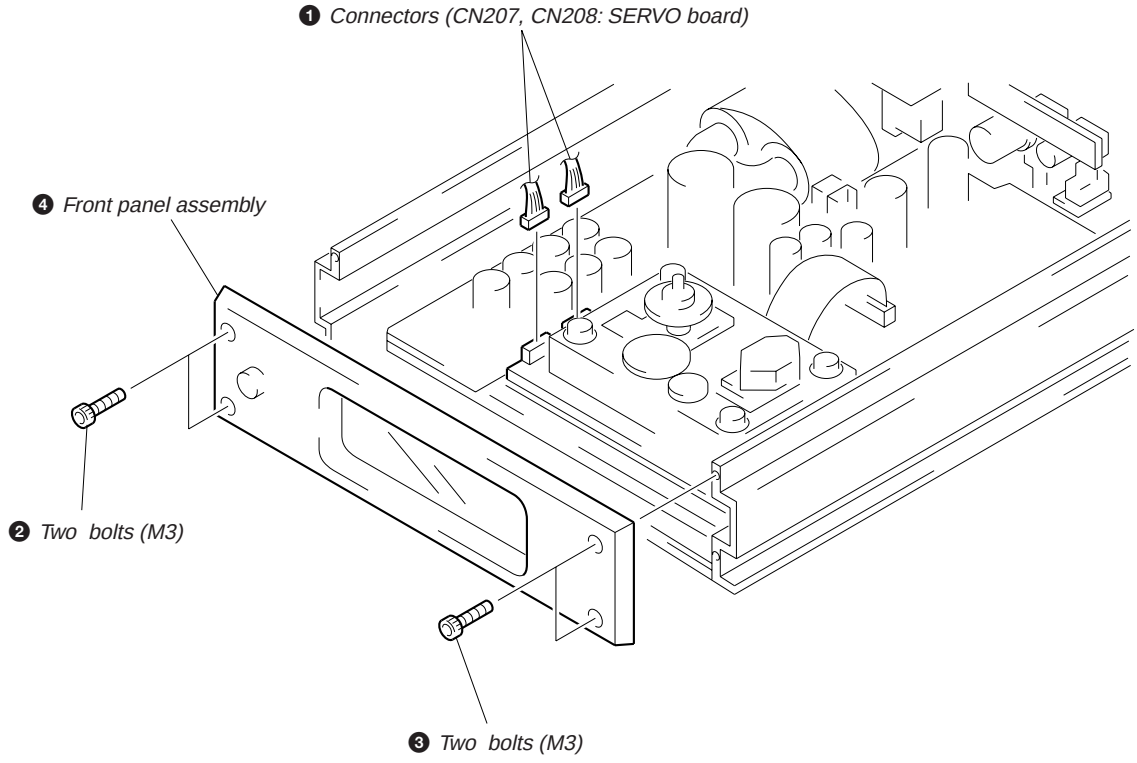
SECTION 3
DISASSEMBLY

Note : Follow the disassembly procedure in the numerical order given.

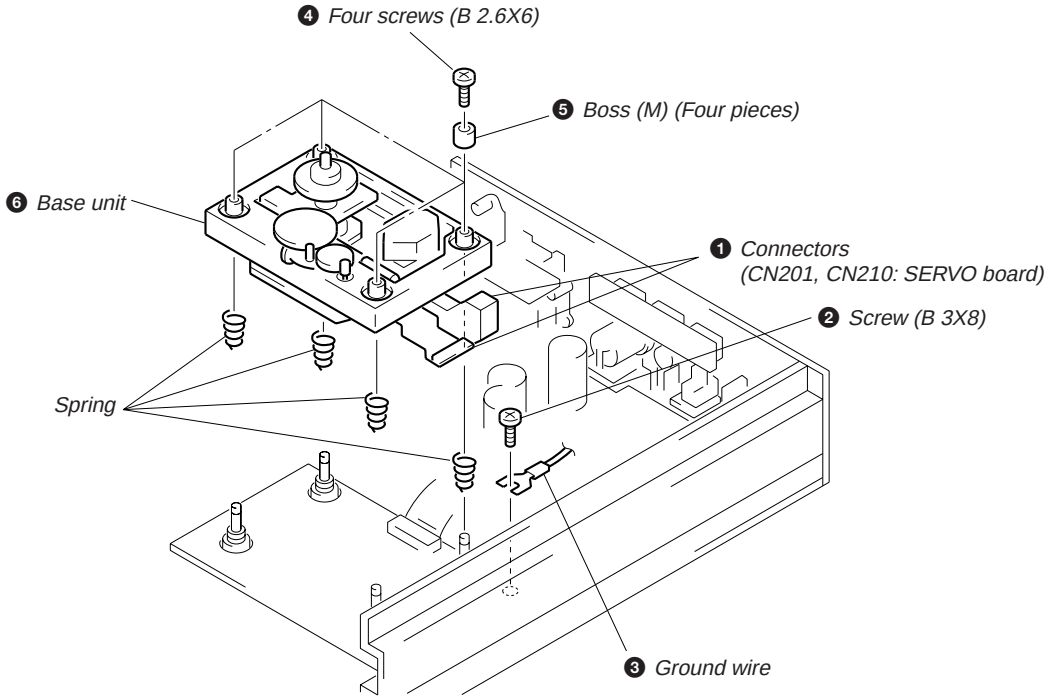
3-1. TOP PLATE ASSEMBLY



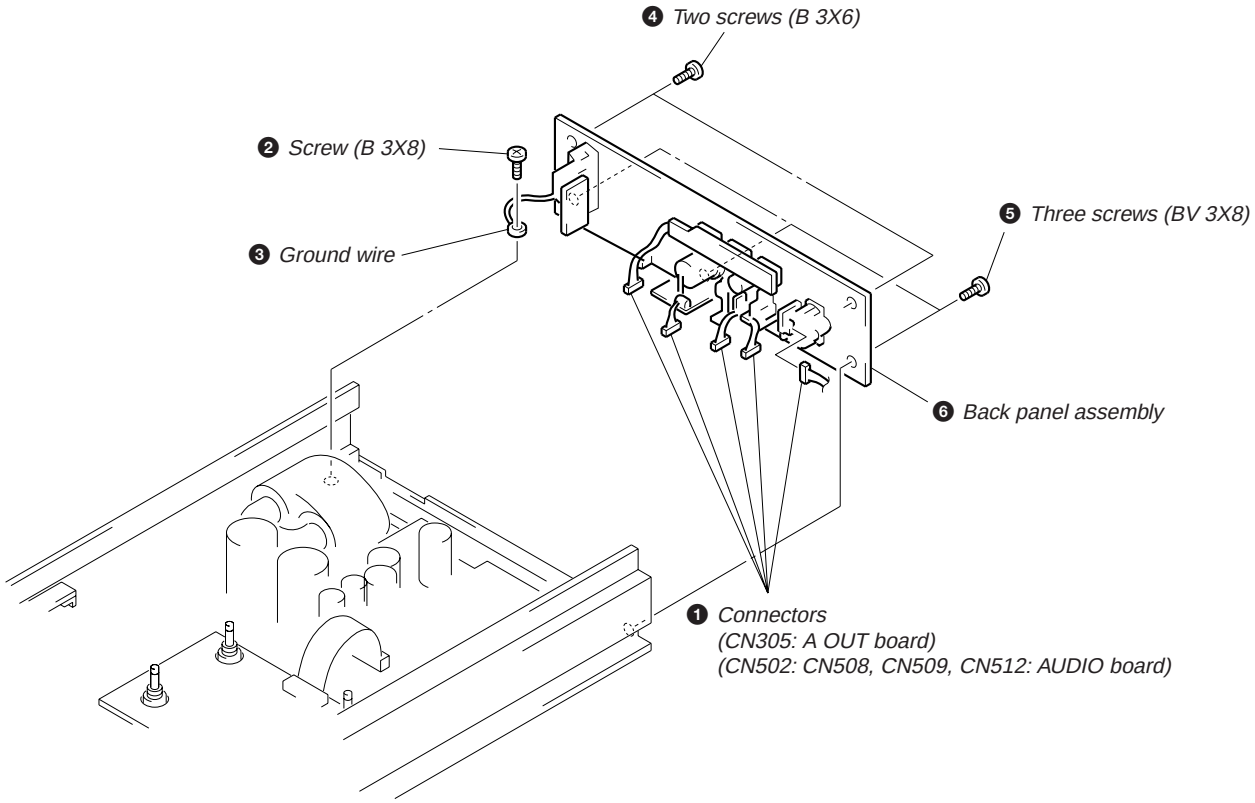
3-2. FRONT PANEL ASSEMBLY



3-3. BASE UNIT



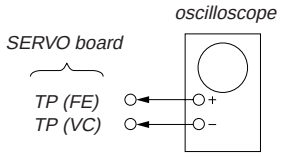
3-4. BACK PANEL


❹ Two screws (B 3X6)
❷ Screw (B 3X8)
❸ Ground wire
❺ Three screws (BV 3X8)
❻ Back panel assembly
❶ Connectors
(CN305: A OUT board)
(CN502: CN508, CN509, CN512: AUDIO board)

SECTION 4
ELECTRICAL BLOCK ADJUSTMENTS

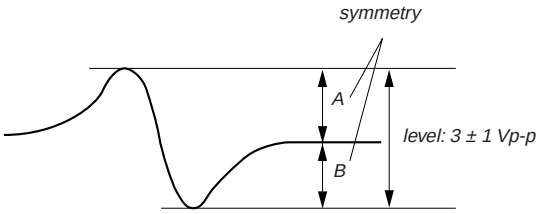
Note:
1. CD Block is basically designed to operate without adjustment. Therefore, check each item in order given.
2. Use YEDS-18 disc (3-702-101-01) unless otherwise indicated.
3. Use an oscilloscope with more than 10MΩ impedance.
4. Clean the object lens by an applicator with neutral detergent when the signal level is low than specified value with the following checks.

S Curve Check



Procedure :
1. Connect oscilloscope to test point TP (FE: CN210 ⑩pin).
2. Connect between test point TP (FEI: IC101 ㉙pin) and TP (VC: CN210 ⑫pin) by lead wire.
3. Put disc (YEDS-18) in and turn Power switch on and actuate the focus search.
4. Check the oscilloscope waveform (S-curve) is symmetrical between A and B. And confirm peak to peak level within 3±1 Vp-p.

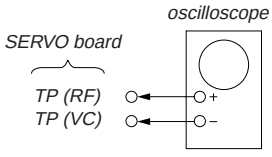
S-curve waveform



5. After check, remove the lead wire connected in step 2.

Note : • Try to measure several times to make sure than the ratio of A : B or B : A is more than 10 : 7.
• Take sweep time as long as possible and light up the brightness to obtain best waveform.

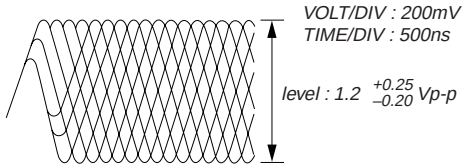
RF Level Check



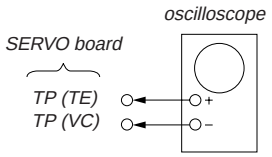
Procedure :
1. Connect oscilloscope to test point TP (RF:CN215 ①pin).
2. Turn Power switch on.
3. Put disc (YEDS-18) in and playback.
4. Confirm that oscilloscope waveform is clear and check RF signal level is correct or not.

Note: A clear RF signal waveform means that the shape "◊" can be clearly distinguished at the center of the waveform.

RF signal waveform

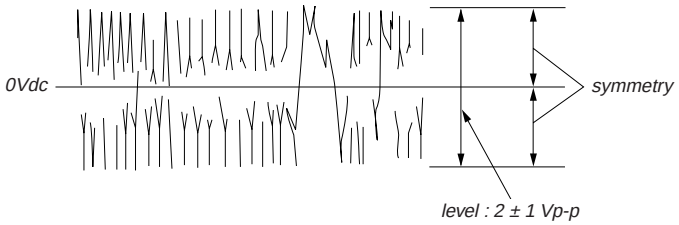


E-F Balance Check



Procedure :
1. Connect test point TP (ADJ: CN515 ③pin) to Ground and TP (TEI: IC101 ㉗pin) to TP (VC: CN210 ⑫pin) with a lead wire.
2. Connect oscillscope to test point TP (TE: CN210 ⑪pin)
3. Turn Power switch on.
4. Put disc (YEDS-18) in and playback.
5. Confirm that the oscilloscope waveform is symmetrical on the top and bottom in relation to 0Vdc, and check this level.

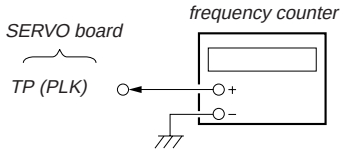
Traverse waveform



6. Remove the lead wire connected in step 1.

RF PLL Free-run Frequency Check

Procedure :
1. Connect frequency counter to test point TP (PLK: CN513 ④pin) with lead wire.



2. Turn Power switch on.
3. Put the disc (YEDS-18) in and playback.
   Confirm that reading on frequency counter is 4.3218 MHz.

Setting of Focus/Tracking Auto Gain Data

Refer to "Writing of Focus/Tracking Auto gain data" on page 3.

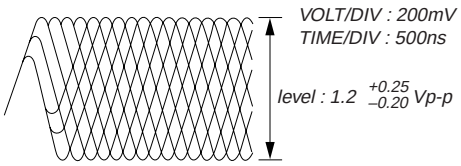
Skew Adjustment

(Be sure to perform this adjustment when the optical pick-up or a mechanical part of the optical pick-up has been replaced.)

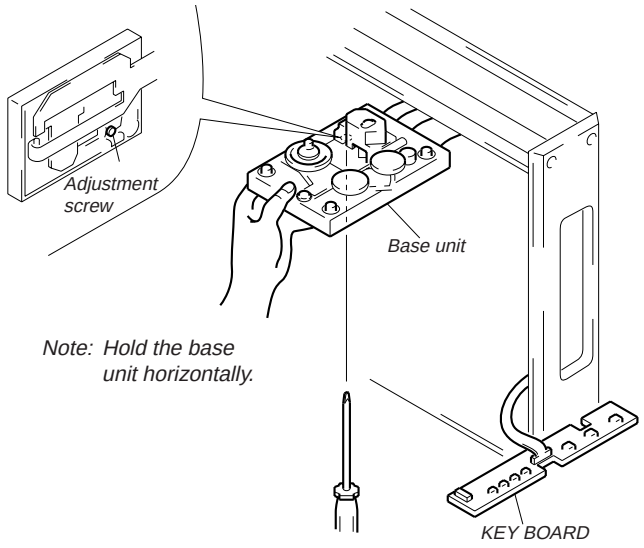
1. Remove the top plate. (See 3. Disassembly/Top Plate Assembly)
2. Remove the eight screw (+B3X8) of the top plate and remove the KEY board.
3. Connect the KEY board connector and the DISPLAY board connector.
4. Remove the base unit. (Do not disconnect the connectors.) (Refer to 3. Disassembly/Base Unit.)
5. Adjust with the unit placed sideways as shown in the figure.
6. Connect and oscilloscope to TP (RF: ①Pin of CN215).
7. While pressing the ▷▷‖and ▷buttons, press the POWER button. (The discrete open/close detection is turned OFF.)
8. Set a disk (YEDS-18) and press the ▷button.
9. Rotate the adjustment screw with a Phillips screwdriver and adjust so that the oscilloscope waveform becomes clear.

Note: A clear RF signal waveform means that the shape "◊" can be clearly distinguished at the center of the waveform.

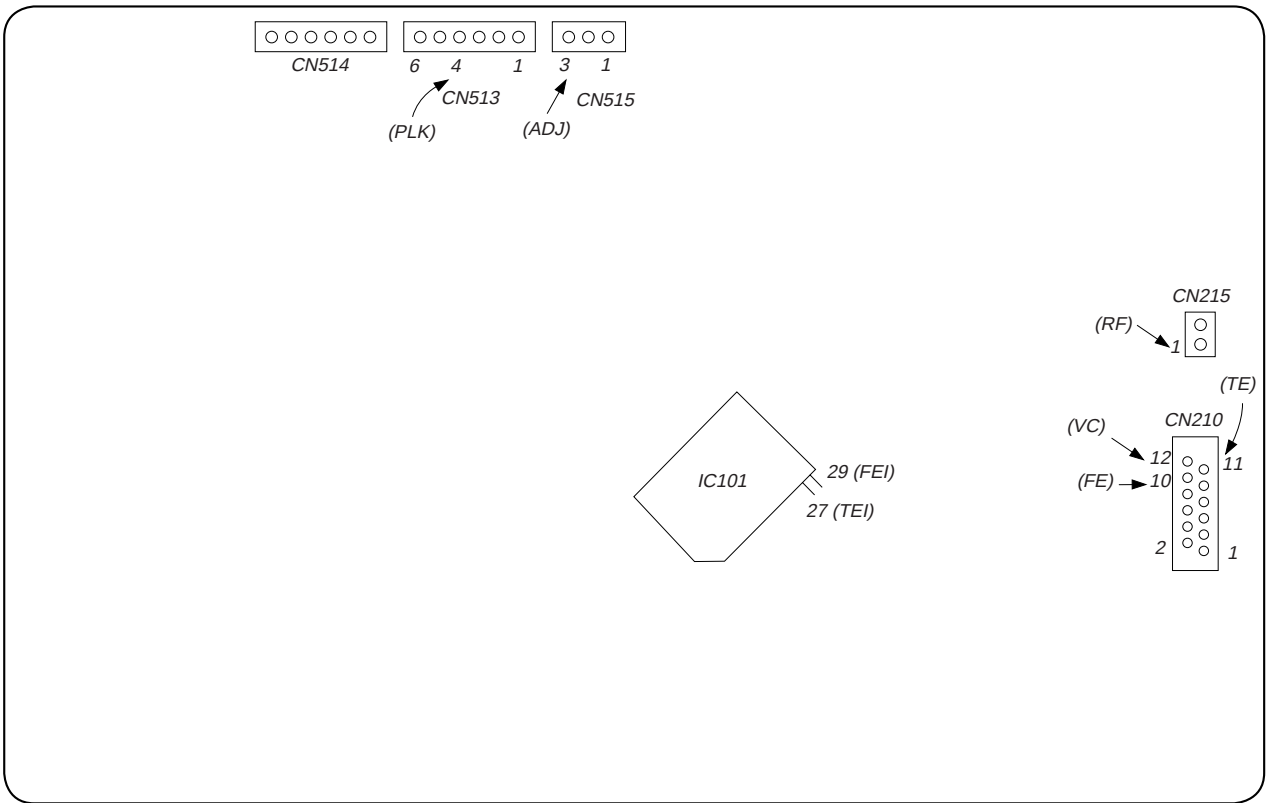
RF signal waveform



10. After the adjustment, lock the adjustment screw.

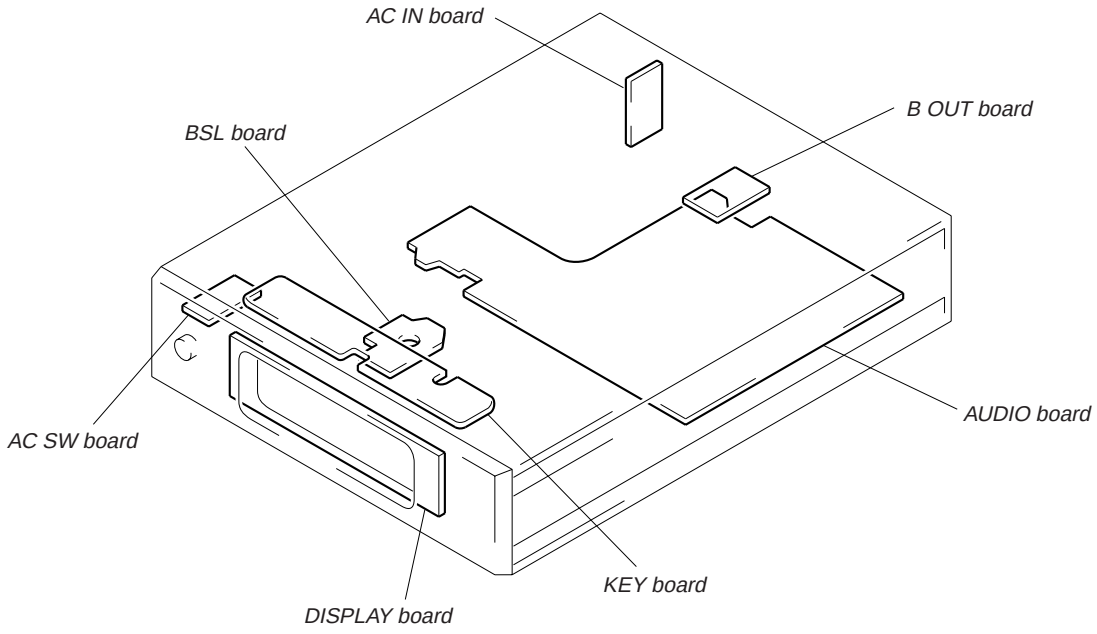


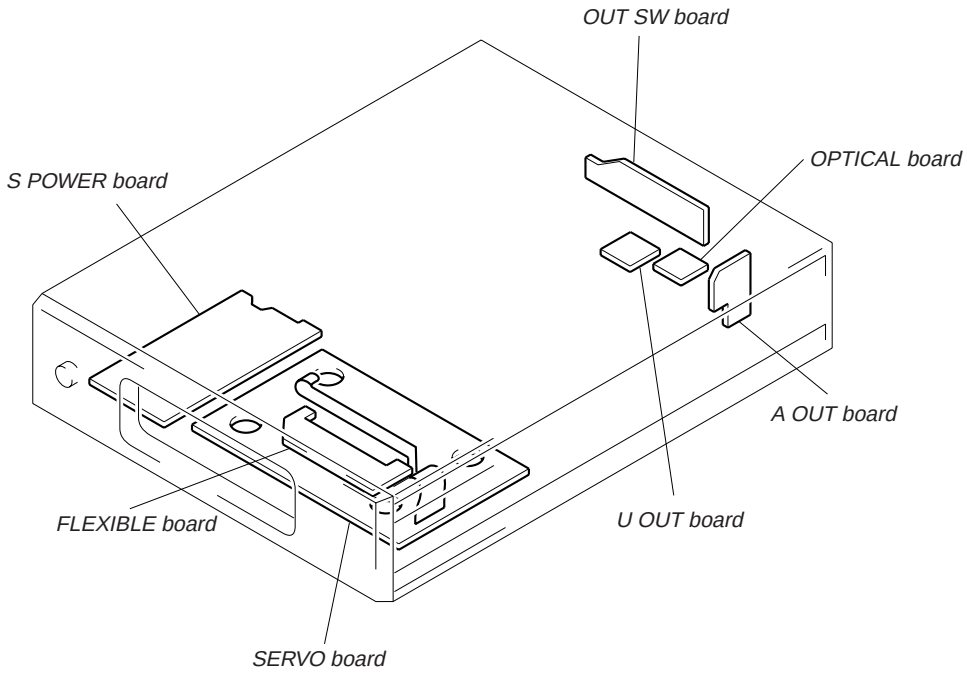
[SERVO BOARD] — Conductor Side —



SECTION 5
DIAGRAMS

5-1. CIRCUIT BOARDS LOCATION





5-2. IC PIN FUNCTIONS

• IC101 FOCUS/TRACKING/SLED SERVO/EFM COMPARATOR (CXD2515AQ)

Pin No.	Pin Name	I/O	Function
1	SRON	O	Sled drive output (Open)
2	SRDR	O	Sled drive output
3	SFON	O	Sled drive output (Open)
4	TFDR	O	Tracking drive output
5	TRON	O	Tracking drive output (Open)
6	TRDR	O	Tracking drive output
7	TFON	O	Tracking drive output (Not used)
8	FFDR	O	Focus drive output
9	FRON	O	Focus drive output (Open)
10	FRDR	O	Focus drive output
11	FFON	O	Focus drive output (Open)
12	VCOO	O	VCO output for analog EFM PLL (Open)
13	VCOI	I	VCO output for analog EFM PLL (Connected to Ground)
14	TEST	I	TEST pin connected normally to Ground (Connected to Ground)
15	DVss	–	Digital Ground
16	TES2	I	TEST pin connected normally to Ground
17	TES3	I	TEST pin connected normally to Ground
18	PDO	O	Charge-pump output for analog EFM PLL (Open)
19	VPCO	O	Charge-pump output for variable pitch PLL (Open)
20	VCKI	I	Clock input from variable pitch external VCO (Connected to Ground)
21	AVD2	–	Analog power supply
22	IGEN	I	Power supply pin for operational amplifiers
23	AVS2	–	Analog Ground
24	ADII	I	A/D converter input pin
25	ADIO	O	OP amplifier output pin
26	RFDC	I	RF signal input
27	TE	I	Tracking error signal input
28	SE	I	Sled error signal input
29	FE	I	Focus error signal input
30	VC	I	Center voltage input pin
31	FILO	O	Filter output for master PLL
32	FILI	I	Filter input for master PLL
33	PCO	O	Charge-pump output for master PLL
34	CLTV	I	Control voltage input for master VCO
35	AVS1	–	Analog Ground
36	RFAC	I	EFM signal input
37	BIAS	I	Asymmetry circuit constant current input
38	ASYI	I	Asymmetry comparate voltage input
39	ASYO	O	EFM full swing output
40	AVD1	–	Analog power supply

• Abbreviation
EFM: Eight to Fourteen Modulation
PLL: Phase Locked Loop

Pin No.	Pin Name	I/O	Function
41	DV_{DD}	–	Digital power supply
42	ASYE	I	Asymmetry circuit ON/OFF (Connected to +5V)
43	PSSL	I	Audio data output mode selection input (Connected to Ground)
44	WDCK	O	48-bit slot D/A interface. Word clock. (Open)
45	LRCK	O	48-bit slot D/A interface. LR clock.
46	DATA	O	DA 16 output when PSSL=1.48-bit slot serial data when PSSL=0
47	BCLK	O	DA 15 output when PSSL=1.48-bit slot data when PSSL=0
48	64DATA	O	DA 14 output when PSSL=1.64-bit slot data when PSSL=0 (Open)
49	64BCLK	O	DA 13 output when PSSL=1.64-bit slot data when PSSL=0 (Open)
50	64LRCK	O	DA 12 output when PSSL=1.64-bit slot data when PSSL=0 (Open)
51	GTOP	O	DA 11 output when PSSL=1.GTOP output when PSSL=0 (Open)
52	XUGF	O	DA 10 output when PSSL=1.XUGF output when PSSL=0 (Open)
53	XPLCK	O	DA 09 output when PSSL=1.XPLCK output when PSSL=0
54	GFS	O	DA 08 output when PSSL=1.GFS output when PSSL=0
55	PFCK	O	DA 07 output when PSSL=1.RFCK output when PSSL=0
56	C2PO	O	DA 06 output when PSSL=1.C2PO output when PSSL=0 (Open)
57	XRAOF	O	DA 05 output when PSSL=1.XRA0F output when PSSL=0 (Open)
58	MNT3	O	DA 04 output when PSSL=1.MNT3 output when PSSL=0
59	MNT2	O	DA 03 output when PSSL=1.MNT2 output when PSSL=0
60	MNT1	O	DA 02 output when PSSL=1.MNT1 output when PSSL=0
61	MNT0	O	DA 01 output when PSSL=1.MNT0 output when PSSL=0
62	XTAI	I	X'tal oscillator circuit input
63	XTAO	O	X'tal oscillator circuit output (Open)
64	XTSL	I	X'tal selection input pin (Connected to Ground)
65	DVss	–	Digital Ground
66	FSTI	I	2/3 divider output of pins 62, 63
67	FSTO	O	2/3 divider output of pins 62, 63
68	C4M	O	4.2336 MHz output (Open)
69	C16M	O	16.9344 MHz output (Open)
70	MD2	I	Digital-out ON/OFF control pin
71	DOUT	O	Digital-out output pin
72	EMPH	O	Playback disc output in emphasis mode (Open)
73	WFCK	O	WFCK output
74	SCOR	O	Sub-code sync output
75	SBSO	O	Sub-P through Sub-W serial output (Open)
76	EXCK	I	Clock input for SBSO read-out (Ground)
77	SUBQ	O	Sub-Q 80-bit output
78	SQCK	I	Clock input for SQSO read-out
79	MUTE	I	Muting selection pin
80	SENS	O	SENS output

• Abbreviation
WFCK: Wirte Frame Clock

Pin No.	Pin Name	I/O	Function
81	XRST	I	System reset
82	DIRC	I	Used in 1-track jump mode (Connected to +5v)
83	SCLK	I	SENS serial data read-out clock
84	DFSW	I	Defect selection pin (Connected to Ground)
85	ATSK	I	Input pin for anti-shock (Connected to Ground)
86	DATA	I	Serial data input, supplied from CPU
87	XLAT	I	Latch input, supplied from CPU
88	CLOK	I	Serial data transfer clock input, supplied from CPU
89	COUT	O	Numbers of track counted signal output (Open)
90	DVDD	–	Digital power supply
91	MIRR	O	Mirror signal output (Open)
92	DFCT	O	Defect signal output (Open)
93	FOK	O	Focus OK output (Open)
94	FSW	O	Output to select spindle motor output filter (Open)
95	MON	O	Output to control ON/OFF of spindle motor (Open)
96	MDP	O	Output to control spindle motor servo
97	MDS	O	Output to control spindle motor servo (Open)
98	LOCK	O	GFS is sampled by 460 Hz. H when GFS is H (Open)
99	SSTP	I	Input signal to detect disc inner most track
100	SFDR	O	Sled drive output

• Abbreviation
GFS: Guard Frame Sync

• **IC201 System Control (CXD84124-043Q)**

Pin No.	Pin Name	I/O	Function
1	A3	O	Output of address to S.REM (LH5160T4)
2	A4	O	
3	A5	O	
4	A6	O	
5	A7	O	
6	A8	O	
7	A9	O	
8	A10	O	
9	A11	O	
10	A12	O	
11	WE	O	Output of write inable to S.REM
12	——	O	Not used (Open)
13	——	O	
14	LED-PLAY	O	PLAY Lamp output “H”: ON
15	LED-PAUSE	O	PAUSE Lamp output “H”: ON
16	PLAY	O	Open
17	SPDL-MUTE	O	Drive IC MUTE output for spindle. “L”: ON
18	DITHER MODE	I	D/F dither mode control input
19	VOL UP	O	Headphone motor volume up output (Not used)
20	VOL DOWN	O	Headphone motor volume down output (Not used)
21	BLK	O	Blank output to fluorescent indicator tube driver. (LC7570E). When the indicator tube lights: “H”
22	D0	O	Serial data output to fluorescent indicator tube driver. (LC7570E)
23	D1	O	
24	D2	O	
25	CLK	O	Clock output to fluorescent indicator tube driver. (LC7570E)
26	WR	O	Latch output to fluorescent indicator tube driver. (LC7570E)
27	SENSER SW	O	Senser powr supply ON/OFF control output for stabilizer detection (Not used)
28	SENSER	I	Stabilizer detection input (Not used)
29	LIMIT OUT	I	Sled out switch input “L”: SW ON
30	RESET	I	Microcomputer reset input
31	XTAL 1	I	Oscillator connector pin (10 MHz)
32	XTAL 0	O	
33	VSS	–	Connected to Ground
34	——	–	Not used (Open)
35	——	–	
36	AVSS	–	A/D converter Ground
37	AVREF	–	A/D converter reference voltage input (Connected to +5V)
38	K0	I	Key data input (A/D input). When the key is not pressed: ”H” (Connected to +5V)
39	K1	I	Key data input (A/D input). When the key is not pressed: ”H”
40	K2	I	Key data input (A/D input). When the key is not pressed: ”H” (Connected to +5V)

Pin No.	Pin Name	I/O	Function
41	K3	I	Key data input (A/D input). When the key is not pressed: “H” (Connected to +5V)
42	K4	I	Key data input (A/D input). When the key is not pressed: “H”
43	K5	I	Model distinction (Connected to +5V)
44	ADJ/AFJ	I	Test mode input. The equipment is fixed at “H”
45	IN/OUT SW	I	Disc lid Open/Close
46	SCLK	O	Serial read out data read out clock output to CXD2515AQ
47	PRGL	O	Program latch to digital filter
48	CLK	O	Serial data transfer clock output to CXD2515AQ, CXD8504M
49	SENSE	I	SENSE signal input from CXD2515AQ
50	DATA	O	Serial data output to CXD2515AQ, CXD8504M
51	SQCK	O	Sub code Q read out clock output to CXD2515AQ
52	SUBQ	I	Sub code Q data input from CXD2515AQ
53	TEST	O	Not used (Open)
54	SEL 1	I	Model distinction (Connected to Ground)
55	SEL 0	I	
56	RMIN	I	Remote contrl signal input
57	TIMER	I	Not used (Connected to +5V)
58	TEST	O	Not used (Open)
59	TEST	O	
60	SCOR	I	Sub code sync input from CXD2515AQ. Start to read out the sub code receiving this signal
61	AMUTE	O	Analog mute output. “H” mute on
62	LDON	O	Laser diode ON/OFF control output “H”: ON
63	XLT	O	Serial data latch output to CXD2515AQ
64	LOAD OUT	O	Output to rotate loading motor in the loading out direction. “H”: OUT (Open)
65	LOAD IN	O	Output to rotate loading motor in the loading in direction. “H”: IN (Open)
66	DOUT	O	Digital output ON/OFF control output
67	DMUTE	O	Muting control output
68	D0	I/O	Input and output of data signal with S. RAM (LH5160T4)
69	D1	I/O	
70	D2	I/O	
71	D3	I/O	
72	V_{DD}	I	Power supply terminal (+5V)
73	NC	–	Connected to +5V
74	D4	I/O	Input and output of data signal with S. RAM (LH5160T4)
75	D5	I/O	
76	D6	I/O	
77	D7	I/O	
78	A0	O	Address signal output to S. RAM (LH5160T4)
79	A1	O	
80	A2	O	

• Main Ports

⑰ SPINDLE MUTE

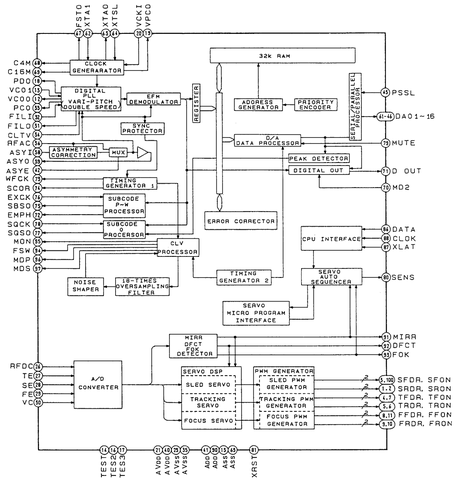
The disc must not move nor sway when the disc lid opens. These problems however occur in the actual case due to the offset voltage generated and the voltage generated because of the positional relation between the BSL coil and Hall element.
The BSL (IC104, IC105) driver is therefore muted while the lid is open.

㉑ BLANK

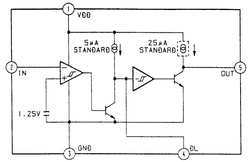
This port is required because the display tube in this set static-lights up and a dedicated screwdriver is required.
It is basically a RESET pin. But as problems will occur if used also as RESET , timings are specially provided using the microprocessor.

• IC BLOCK DIAGRAMS

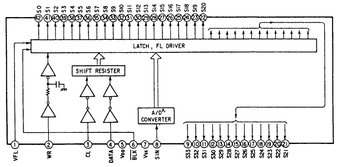
IC101 CXD2515AQ



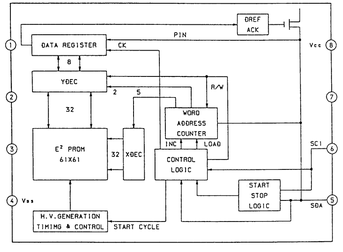
IC691 M51957AL



IC801-803 LC7570E



IC203 X24C01S



• Semiconductor Location

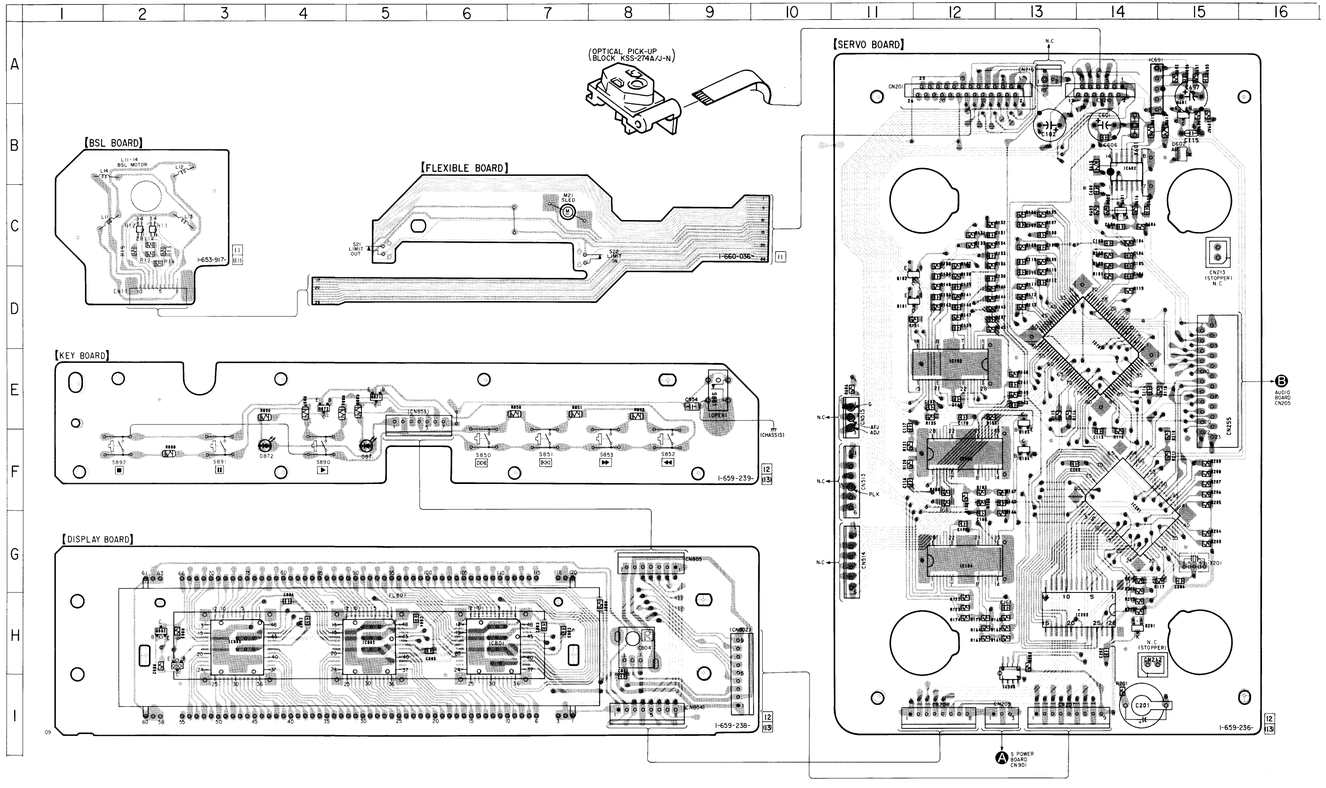
Ref. No.	Location
D201	H-14
D601	C-14
D602	B-15
D871	F-5
D872	F-3
IC101	D-14
IC102	E-12
IC104	G-12
IC105	F-12
IC201	F-14
IC202	H-14
IC203	H-13
IC602	B-14
IC691	A-14
IC801	H-6
IC802	H-5
IC803	H-3
IC804	H-8
Q101	D-11
Q102	D-11
Q103	E-13
Q104	F-13
Q601	B-15
Q801	H-2
Q802	H-2
Q871	E-5
Q872	E-4

Note:

- ○——: parts extracted from the component side.
- ——○: parts extracted from the conductor side.
- ○: Through hole.
- △: Internal component.
- ▨: Pattern from the side which enable seeing.
- : Pattern of the rear side.

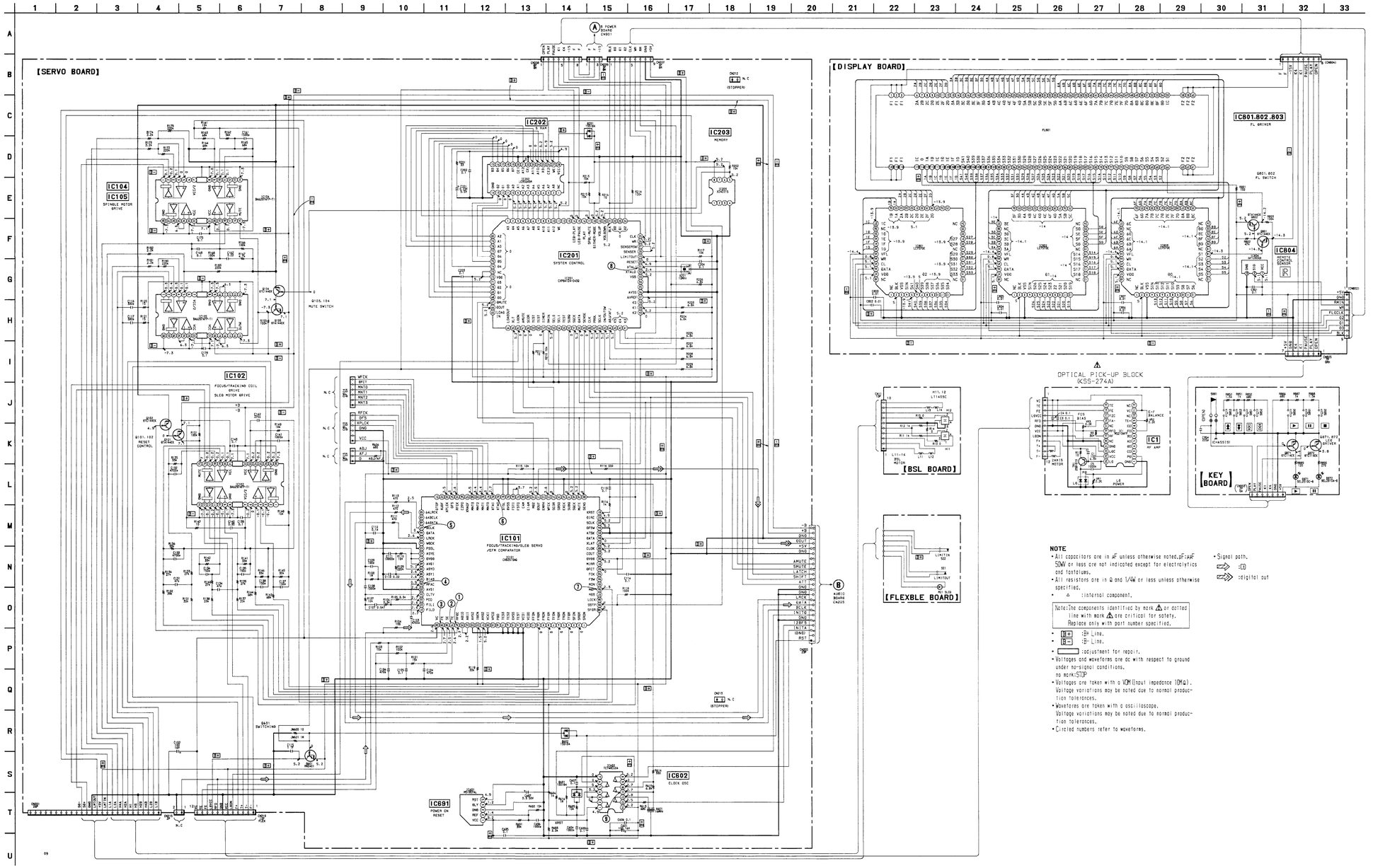
5-3. PRINTED WIRING BOARD — SERVO, PANEL SECTION —

• See page 12 for Circuit Boards Location.



5-4. SCHEMATIC DIAGRAM — SERVO, PANEL SECTION —

• See page 13 for IC Pin Function. (IC101, 201)



• Waveforms

① 1.2Vp-p — IC101 ㉘ PLAY

② 2.5V — APPROX 400mp-p — IC101 ㉗ PLAY

③ 2.5V — APPROX 200mp-p — IC101 ㉘ PLAY

④ 1.2Vp-p — IC101 ㊳ PLAY

⑤ 5Vp-p — 470nsec — IC101 ㊼

⑥ 4.8Vp-p — 16MHz — IC101 ㊸

⑦ 2.6Vp-p — 7.5 μsec — IC101 ㊽ PLAY

⑧ 4.6Vp-p — 10MHz — IC201 ㉛

⑨ 2.8Vp-p — 16MHz — IC602 ⑪

NOTE

- All capacitors are in μF unless otherwise noted. pF: μμF
  50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- △ : internal component.

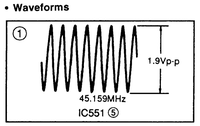
Note: The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

- B+ : B+ Line.
- B− : B− Line.
- : adjustment for repair.
- Voltages and waveforms are dc with respect to ground under no-signal conditions. no mark: STOP
- Voltages are taken with a VOM (input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.

- Signal path.
  - : CD
  - : digital out

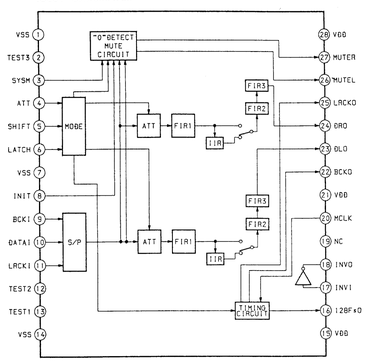
5-5. SCHEMATIC DIAGRAM — AUDIO, POWER SECTION —

• Waveforms

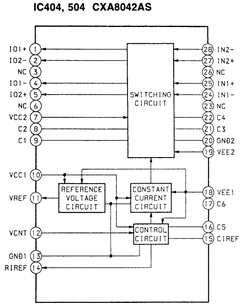


• IC BLOCK DIAGRAMS

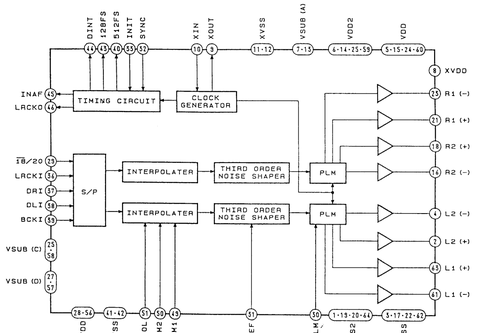
IC601 CXD8504AM



IC404, 504 CXA8042AS



IC603 CXD2562Q



NOTE

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- ⚠ :fusible resistor.
- ▭ :panel designation.

Note:The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

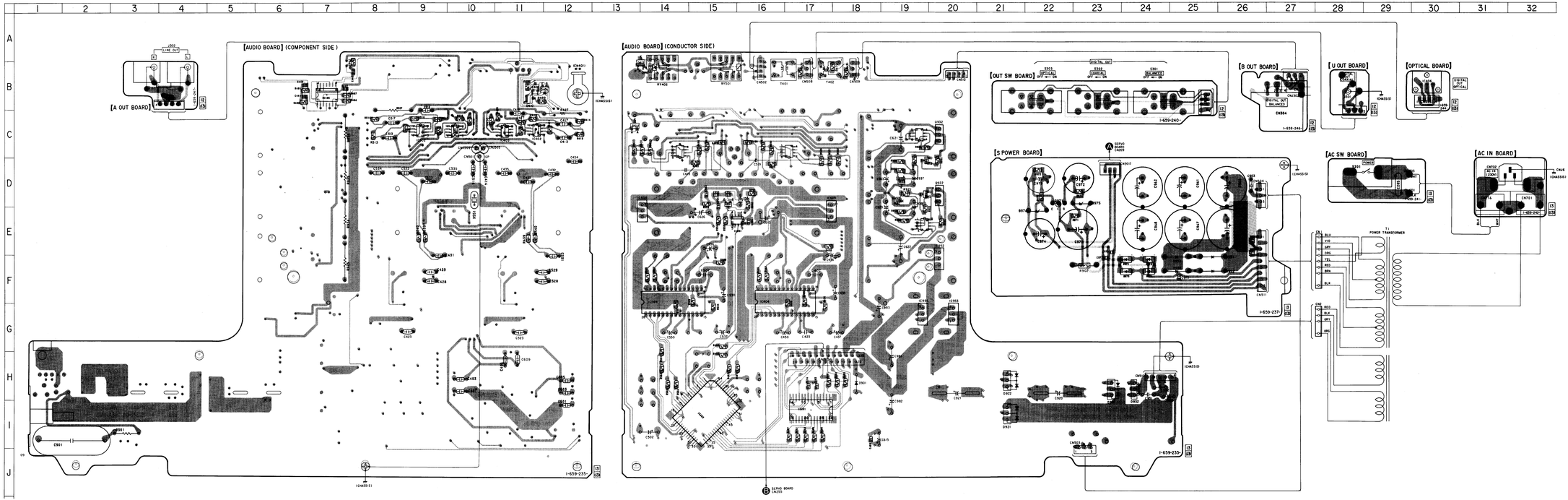
- B+ :B+ Line.
- B− :B− Line.
- Voltages and waveforms are dc with respect to ground under no-signal conditions. no mark:STOP
- Voltages are taken with a VOM(input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  - :CD
  - :digital out

【S POWER BOARD】 【AC SW BOARD】 【AC IN BOARD】 【AUDIO BOARD】 【OUT SW BOARD】 【B OUT BOARD】 【U OUT BOARD】 【OPTICAL BOARD】 【A OUT BOARD】

IC951 IC952 IC953 IC922 IC921 IC405 IC502 IC404 IC501 IC503 IC601 IC551 IC605 IC603 IC504 IC608 IC401 IC402 IC403 IC406

5-6. PRINTED WIRING BOARD — AUDIO, POWER SECTION —

• See page 12 for Circuit Boards Location.



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— 32 —

— 33 —

— 34 —

• **Semiconductor Location**

Ref. No.	Location
D410	B-11
D411	C-13
D412	A-13
D901	H-18
D921	I-21
D922	H-21
D924	D-19
D931	H-23
D932	H-24
D933	D-19
D951	F-25
D952	F-25
D953	F-25
D954	F-25
D971	F-23
D972	F-24
D973	F-23
D974	F-24
D975	D-23
D976	E-22
IC401	C-14
IC402	C-11
IC403	C-11
IC404	F-16
IC405	B-7
IC406	B-30
IC501	C-16
IC502	C-9
IC503	C-10
IC504	F-14
IC551	E-15
IC601	I-17
IC603	I-15
IC605	D-17
IC608	E-13
IC921	C-19
IC922	E-19
IC951	F-19
IC952	E-20
IC953	F-20
Q401	B-12
Q402	B-11
Q551	D-15
Q921	D-19
Q922	D-20
Q931	C-19
Q932	C-20
Q971	D-23

Note:

- ⟵ : parts extracted from the component side.
- ⟶ : parts extracted from the conductor side.
- ○ : Through hole.
- ■ : Pattern from the side which enable seeing. (The other layer's patterns are not indicated.)
- ▨ : Pattern of the rear side.

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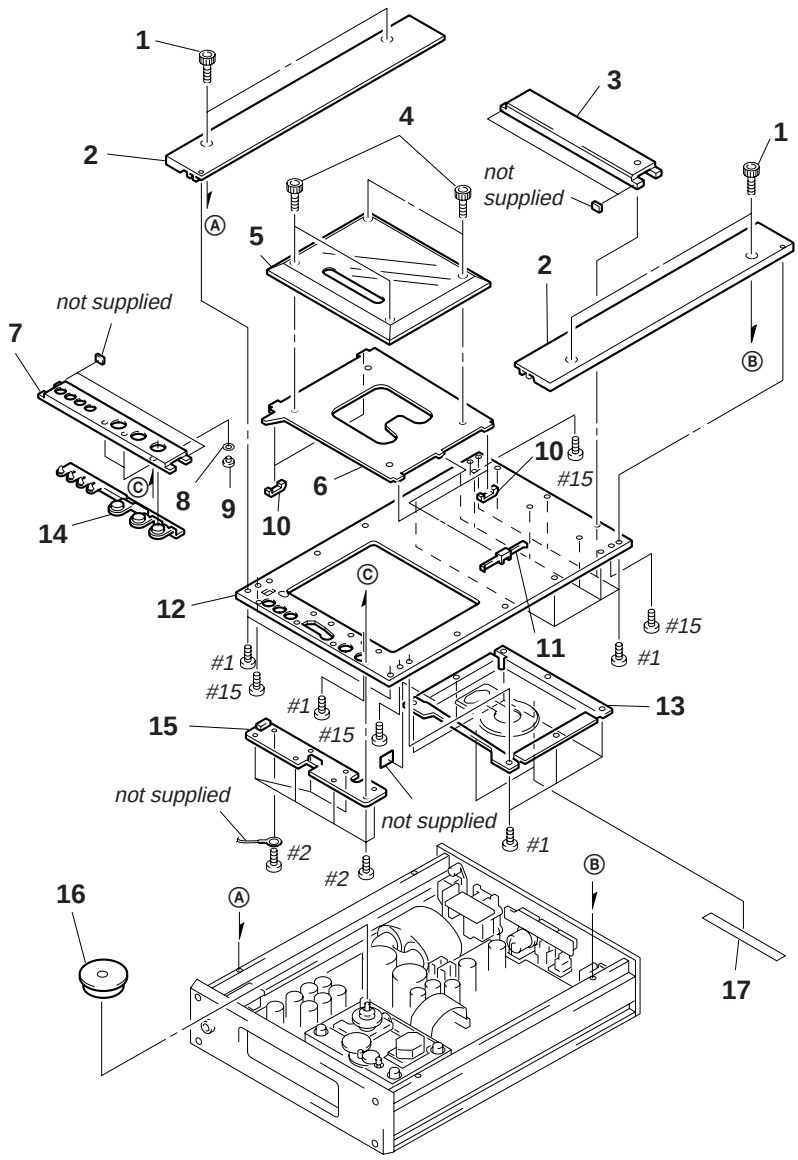
SECTION 6
EXPLODED VIEWS

NOTE:
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.

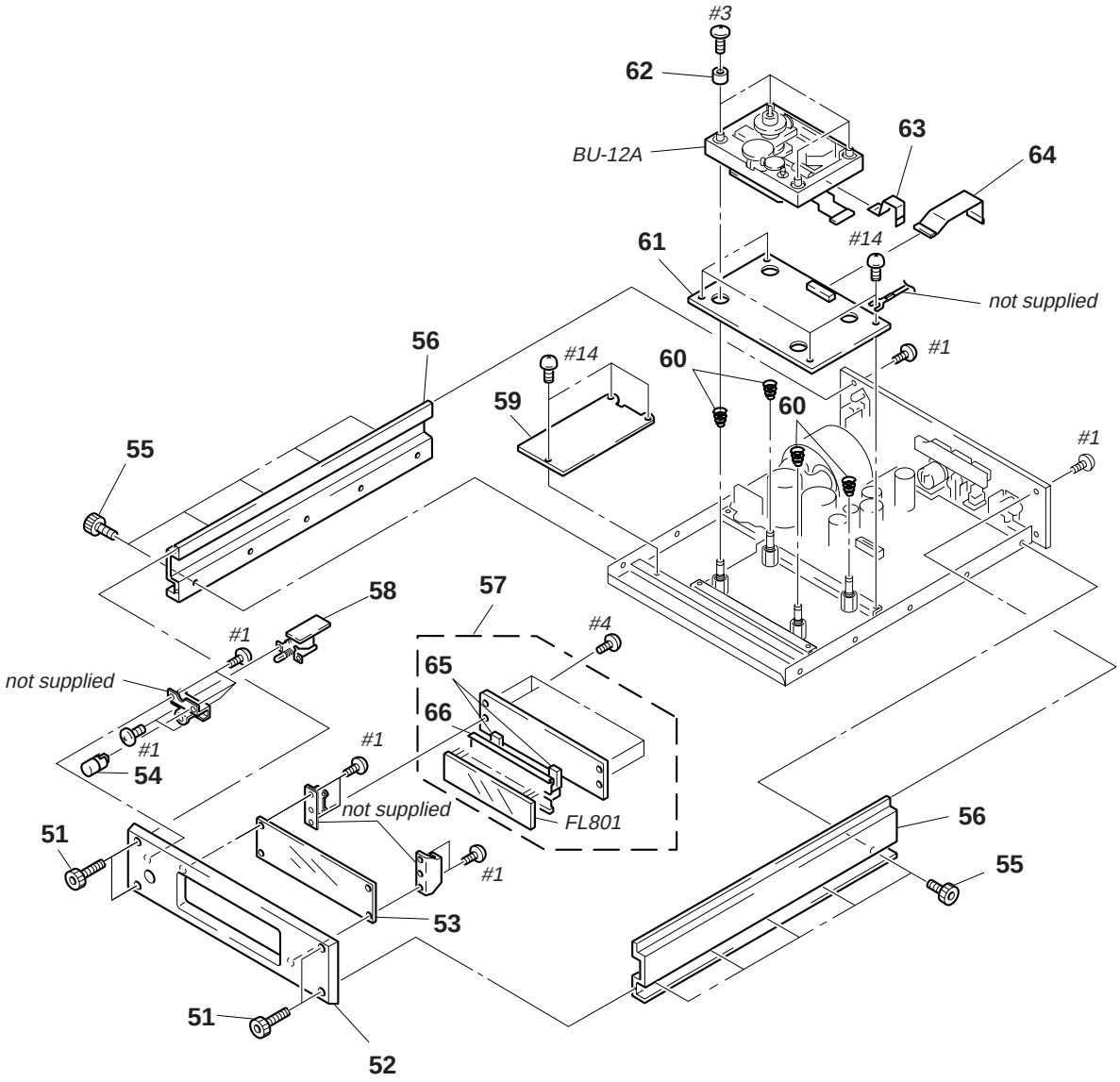
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

6-1. TOP PLATE ASSEMBLY SECTION



Ref. No.	Part No.	Description	Remark
1	4-960-910-21	SCREW, ORNAMENTAL	
2	4-979-021-01	PLATE (A), TOP	
3	4-979-026-01	PLATE (B), ORNAMENTAL	
4	4-960-910-11	SCREW, ORNAMENTAL	
5	4-979-028-01	WINDOW, DISC	
6	4-979-039-01	HOLDER (R)	
7	4-979-027-01	PLATE (F), ORNAMENTAL	
* 8	4-927-881-01	SHEET, ADHESIVE	
9	4-924-233-01	INDICATOR	
10	4-979-030-01	SLIDER	
11	4-979-045-01	SLIDER (B)	
12	4-979-020-01	PLATE (B), TOP	
13	4-979-025-01	PLATE (D), ORNAMENTAL	
14	4-979-031-01	BUTTON, CONTROL	
* 15	A-4673-795-A	KEY BOARD, COMPLETE	
16	4-979-043-01	PULLEY, DISK	
17	4-980-533-01	DAMPER (B)	

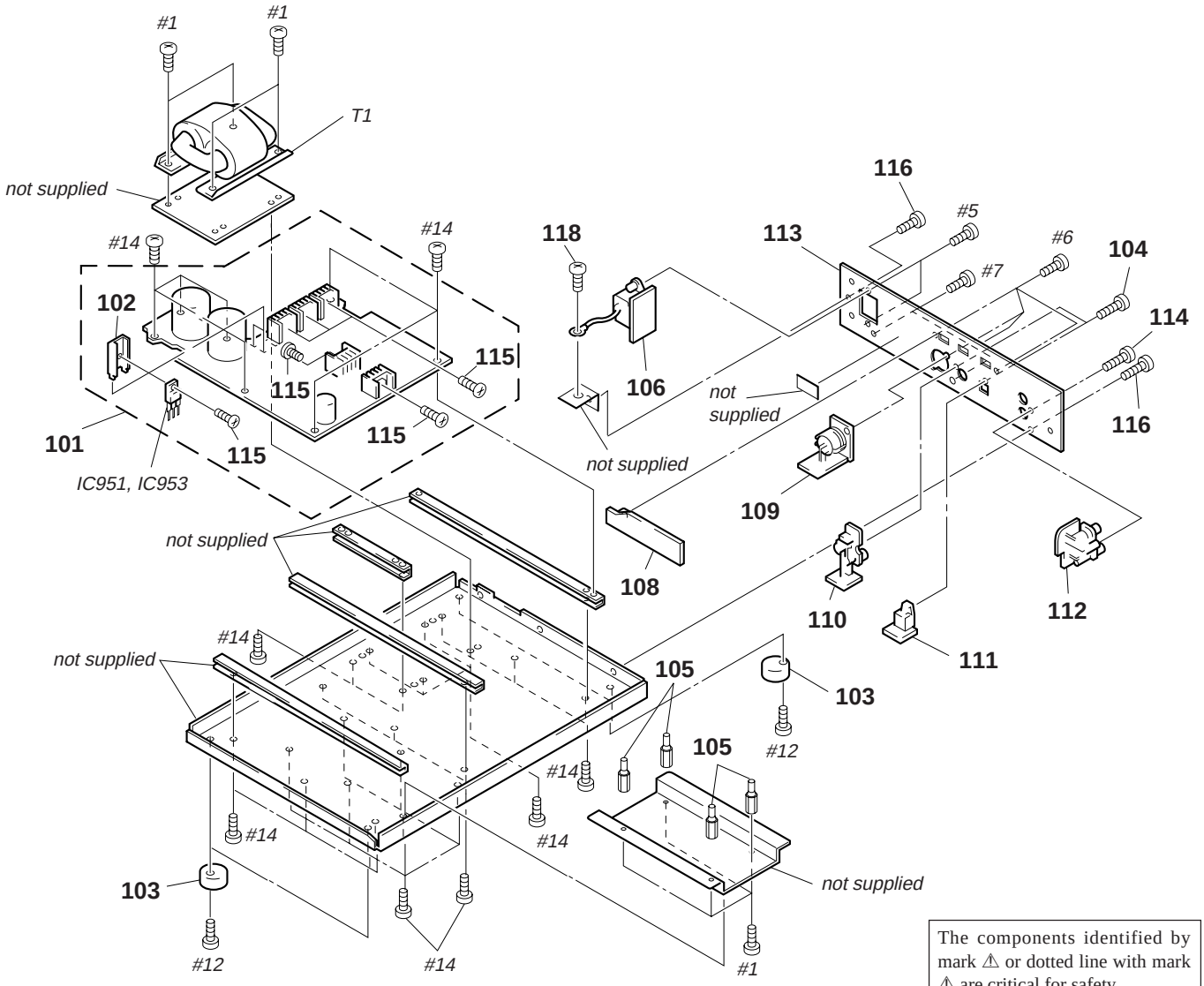
6-2. FRONT PANEL SECTION



Ref. No.	Part No.	Description	Remark
51	3-910-074-31	BOLT (M3)	
52	4-979-033-01	PANEL, FRONT	
53	4-979-042-01	WINDOW, INDICATION	
54	X-4946-608-1	BUTTON ASSY, POWER	
55	4-960-910-21	SCREW, ORNAMENTAL	
56	4-979-034-01	PANEL, SIDE	
* 57	A-4673-794-A	DISPLAY BOARD, COMPLETE	
* 58	1-659-241-11	AC SW BOARD	
* 59	A-4673-792-A	S POWER BOARD, COMPLETE	

Ref. No.	Part No.	Description	Remark
60	4-948-375-01	SPRING (F), COIL	
* 61	A-4673-793-A	SERVO BOARD, COMPLETE	
62	4-979-041-01	BOSS (M)	
63	1-776-183-11	WIRE (FLAT TYPE)	
64	1-776-182-11	WIRE (FLAT TYPE)	
* 65	4-971-241-01	CUSHION (FLT)	
* 66	4-969-510-01	HOLDER (FL)	
FL801	1-517-357-11	INDICATOR TUBE, FLUORESCENT	

6-3. BACK PANEL SECTION

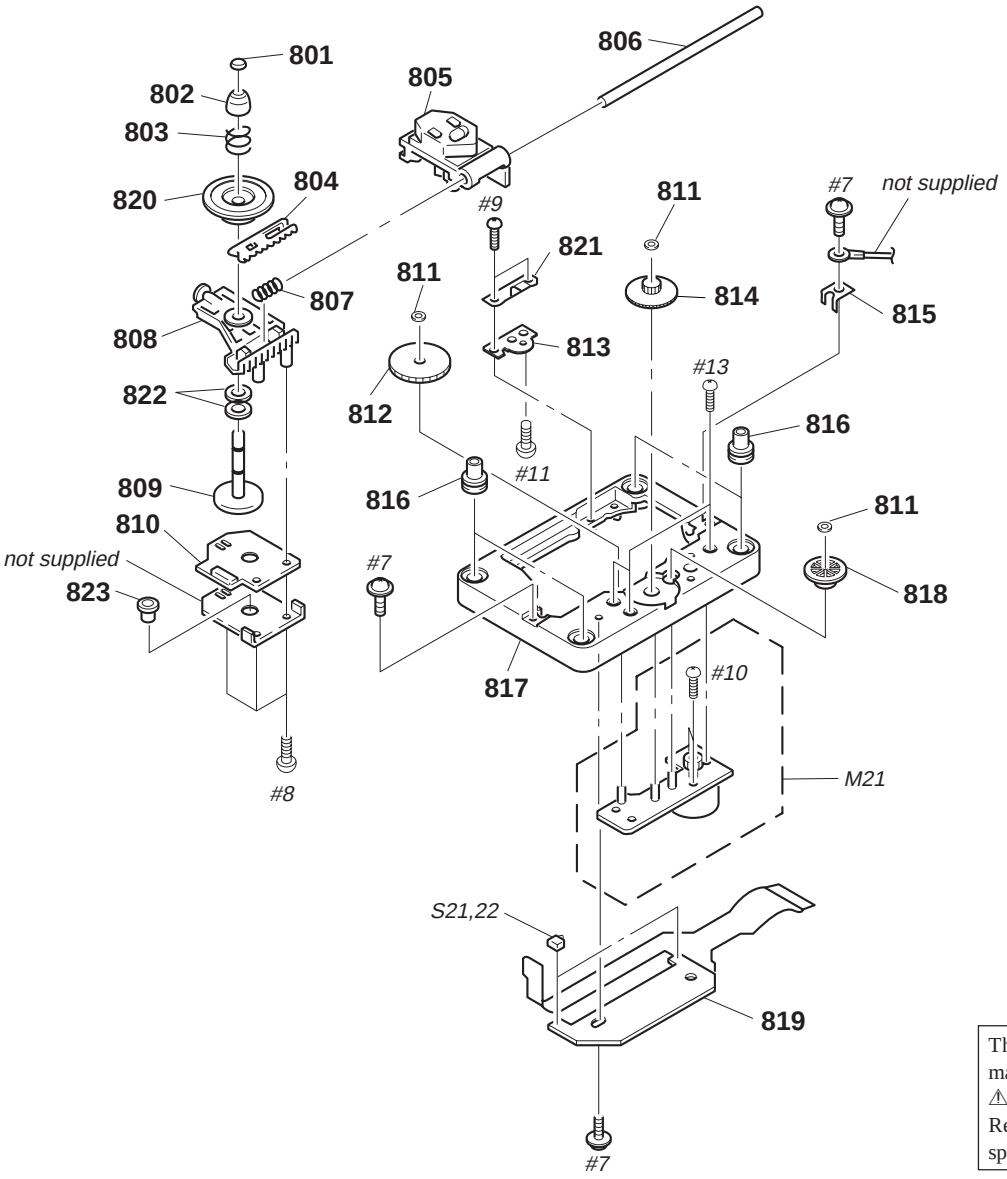


The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
* 101	A-4673-791-A	AUDIO BOARD, COMPLETE	
* 102	4-941-237-01	HEAT SINK	
103	X-4947-280-1	FOOT ASSY	
104	4-969-221-01	SCREW (3X12)	
105	4-927-634-01	HOLDER (SP)	
* 106	1-659-242-11	AC IN BOARD	
* 108	1-659-240-11	OUT SW BOARD	
* 109	1-659-246-11	B OUT BOARD	
* 110	1-659-245-11	U OUT BOARD	
* 111	1-659-244-11	OPTICAL BOARD	

Ref. No.	Part No.	Description	Remark
* 112	1-659-247-11	A OUT BOARD	
* 113	4-983-748-01	PANEL, BACK	
114	3-704-515-41	SCREW (BV/RING)	
115	2-259-121-01	SCREW, TR	
116	3-704-515-21	SCREW (BV/RING)	
118	4-967-960-01	SCREW (4X8)	
IC951	8-759-604-86	IC M5F7807L	
IC953	8-759-604-90	IC M5F7907L	
⚠T1	1-429-750-11	TRANSFORMER, POWER	

6-4. BASE UNIT SECTION (BU-12A)



The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
801	4-968-871-01	WASHER (SPINDLE)	
802	4-968-867-01	CAP, CENTERING	
803	4-968-869-01	SPRING (CENTERING),COMPRESSION	
804	4-968-870-01	RACK, SLIDE	
⚠805	8-848-466-11	OPTICAL PICK-UP BLOCK KSS-274A/J-N	
* 806	4-968-944-01	SHAFT, SLED	
807	4-968-880-01	SPRING (SLED), COMPRESSION	
808	X-4945-203-1	BASE ASSY, SLIDE	
809	X-4945-273-1	ROTOR ASSY	
810	A-4673-222-A	BSL BOARD, COMPLETE	
811	3-364-731-01	WASHER, POLY-SLIDER	
812	4-968-866-01	GEAR (D)	
813	4-968-916-01	BRACKET (OP BASE)	
814	4-968-865-01	GEAR (C)	
815	4-968-879-01	SPRING (OP), LEAF	
816	4-917-562-11	INSULATOR	
* 817	4-968-862-01	BASE, MECHANICAL	
818	4-968-864-01	GEAR (B)	
819	1-653-918-11	FLEXIBLE BOARD	
820	4-979-955-01	PULLEY (S1), DISC	
821	4-970-924-01	SPRING (SKEW), LEAF	
822	3-701-444-11	WASHER, 6	
823	4-943-342-01	BEARING	
M21	X-4945-920-1	MOTOR ASSY (SLED)	
S21	1-571-958-11	SWITCH, PUSH (1 KEY)(LIMIT OUT)	
S22	1-571-958-11	SWITCH, PUSH (1 KEY)(LIMIT IN)	

SECTION 7
ELECTRICAL PARTS LIST

Note:

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- RESISTORS
  All resistors are in ohms
  METAL: Metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F : nonflammable
- SEMICONDUCTORS
  In each case, u: µ , for example:
  uA...: µ A..., uPA...: µ PA..., uPB...: µ PB..., uPC...: µ PC..., uPD...: µ PD...
- CAPACITORS
  uF : µ F
- COILS
  uH : µ H

Ref. No.	Part No.	Description			Remark
*	1-659-247-11	A OUT BOARD			
		**********			
		< CONNECTOR >			
* CN305	1-564-507-11	PLUG, CONNECTOR 4P (DIGITAL OUT BALANCE)			
		< JACK >			
J302	1-568-250-21	JACK, PIN 2P (LINE OUT)			
**********					
*	1-659-241-11	AC SW BOARD			
		**********			
		< CAPACITOR >			
⚠C205	1-113-920-11	ELECT	0.0022uF	20% 250V	
		< SWITCH >			
⚠S201	1-554-538-00	SWITCH, PUSH (AC POWER)(1 KEY)(POWER)			
**********					
*	1-659-242-11	AC IN BOARD			
		**********			
		< CONNECTOR >			
CN701	1-564-321-00	PIN, CONNECTOR 2P			
⚠CN702	1-251-234-11	INLET, AC (AC IN (230V))			
**********					
*	A-4673-791-A	AUDIO BOARD, COMPLETE			
		**********			
	2-259-121-01	SCREW, TR			
*	4-941-237-01	HEAT SINK			
		< CAPACITOR >			
C401	1-136-850-11	FILM	0.1uF	5% 63V	
C403	1-136-850-11	FILM	0.1uF	5% 63V	
C405	1-136-850-11	FILM	0.1uF	5% 63V	
C407	1-136-850-11	FILM	0.1uF	5% 63V	
C413	1-136-810-11	FILM	220PF	5% 100V	
C414	1-136-810-11	FILM	220PF	5% 100V	
C417	1-136-817-91	FILM	0.0033uF	5% 100V	
C418	1-136-813-11	FILM	680PF	5% 100V	
C419	1-115-196-11	FILM	0.47uF	5% 200V	
C423	1-136-850-11	FILM	0.1uF	5% 63V	
C428	1-136-850-11	FILM	0.1uF	5% 63V	
C429	1-136-850-11	FILM	0.1uF	5% 63V	
C430	1-128-200-11	ELECT	47uF	20% 63V	
C431	1-130-973-00	FILM	0.022uF	3% 100V	
C432	1-130-969-11	FILM	0.012uF	3% 100V	
C433	1-130-969-11	FILM	0.012uF	3% 100V	
C434	1-130-856-00	FILM	0.0068uF	3% 100V	
C435	1-130-856-00	FILM	0.0068uF	3% 100V	
C436	1-128-198-11	ELECT	22uF	20% 63V	
C437	1-128-198-11	ELECT	22uF	20% 63V	
C440	1-164-004-11	CERAMIC CHIP	0.1uF	10% 25V	
C441	1-164-004-11	CERAMIC CHIP	0.1uF	10% 25V	
C442	1-164-004-11	CERAMIC CHIP	0.1uF	10% 25V	
C443	1-164-004-11	CERAMIC CHIP	0.1uF	10% 25V	
C446	1-164-004-11	CERAMIC CHIP	0.1uF	10% 25V	
C450	1-128-198-11	ELECT	22uF	20% 63V	
C501	1-136-850-11	FILM	0.1uF	5% 63V	
C502	1-126-234-11	ELECT	2200uF	20% 16V	
C503	1-136-850-11	FILM	0.1uF	5% 63V	
C505	1-136-850-11	FILM	0.1uF	5% 63V	
C507	1-136-850-11	FILM	0.1uF	5% 63V	
C513	1-136-810-11	FILM	220PF	5% 100V	
C514	1-136-810-11	FILM	220PF	5% 100V	
C517	1-136-817-91	FILM	0.0033uF	5% 100V	
C518	1-136-813-11	FILM	680PF	5% 100V	
C519	1-115-196-11	FILM	0.47uF	5% 200V	
C523	1-136-850-11	FILM	0.1uF	5% 63V	
C528	1-136-850-11	FILM	0.1uF	5% 63V	
C529	1-136-850-11	FILM	0.1uF	5% 63V	
C530	1-128-200-11	ELECT	47uF	20% 63V	
C531	1-130-973-00	FILM	0.022uF	3% 100V	
C532	1-130-969-11	FILM	0.012uF	3% 100V	
C533	1-130-969-11	FILM	0.012uF	3% 100V	
C534	1-130-856-00	FILM	0.0068uF	3% 100V	
C535	1-130-856-00	FILM	0.0068uF	3% 100V	
C536	1-128-198-11	ELECT	22uF	20% 63V	
C537	1-128-198-11	ELECT	22uF	20% 63V	
C550	1-128-198-11	ELECT	22uF	20% 63V	
C551	1-163-095-00	CERAMIC CHIP	12PF	5% 50V	
C552	1-163-117-00	CERAMIC CHIP	100PF	5% 50V	
C553	1-163-117-00	CERAMIC CHIP	100PF	5% 50V	
C554	1-163-095-00	CERAMIC CHIP	12PF	5% 50V	

AUDIO

Ref. No.	Part No.	Description			Remark
C555	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C602	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C603	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C609	1-136-850-11	FILM	0.1uF	5%	63V
C613	1-128-091-11	ELECT	1000uF	20%	50V
C614	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C615	1-126-103-11	ELECT	470uF	20%	16V
C621	1-128-205-11	ELECT	1000uF	20%	63V
C622	1-128-205-11	ELECT	1000uF	20%	63V
C626	1-128-091-11	ELECT	1000uF	20%	50V
C901	1-136-880-11	FILM	2.2uF	10%	160V
C920	1-115-194-11	ELECT	3000uF	20%	63V
C921	1-115-194-11	ELECT	3000uF	20%	63V
C923	1-124-910-11	ELECT	47uF	20%	50V
C933	1-124-910-11	ELECT	47uF	20%	50V
C937	1-124-122-11	ELECT	100uF	20%	50V
C938	1-124-122-11	ELECT	100uF	20%	50V
C950	1-130-467-00	MYLAR	470PF	5%	50V
C951	1-130-467-00	MYLAR	470PF	5%	50V
C952	1-130-467-00	MYLAR	470PF	5%	50V
C981	1-124-563-11	ELECT	2200uF	20%	25V
C982	1-124-563-11	ELECT	2200uF	20%	25V
C983	1-124-563-11	ELECT	2200uF	20%	25V
		< CONNECTOR >			
CN205	1-750-428-11	CONNECTOR, FFC/FPC 23P			
* CN502	1-564-338-00	PIN, CONNECTOR 4P			
CN503	1-564-506-11	PLUG, CONNECTOR 3P			
CN508	1-564-506-11	PLUG, CONNECTOR 3P			
CN509	1-564-506-11	PLUG, CONNECTOR 3P			
CN510	1-691-766-11	PLUG (MICRO CONNECTOR) 4P			
* CN512	1-564-338-00	PIN, CONNECTOR 4P			
		< DIODE >			
D410	8-719-025-49	DIODE 02CZ15-TE85L			
D411	8-719-801-78	DIODE 1SS184			
D412	8-719-801-78	DIODE 1SS184			
D901	8-719-210-21	DIODE 11EQS04			
D921	8-719-210-29	DIODE F10P10Q			
D922	8-719-210-29	DIODE F10P10Q			
D924	8-719-043-82	DIODE 02CZ5.1Y-TE85L			
D931	8-719-210-29	DIODE F10P10Q			
D932	8-719-210-29	DIODE F10P10Q			
D933	8-719-043-82	DIODE 02CZ5.1Y-TE85L			
		< IC >			
IC401	8-759-296-74	IC AD712JR-REEL			
IC402	8-759-296-74	IC AD712JR-REEL			
IC403	8-759-296-74	IC AD712JR-REEL			
IC404	8-759-371-51	IC CXA8042AS			
IC405	8-759-925-76	IC SN74HC08ANS			
IC501	8-759-296-74	IC AD712JR-REEL			
IC502	8-759-296-74	IC AD712JR-REEL			

Ref. No.	Part No.	Description			Remark
IC503	8-759-296-74	IC AD712JR-REEL			
IC504	8-759-371-51	IC CXA8042AS			
IC551	8-759-242-70	IC TC7WU04F			
IC601	8-759-334-74	IC CXD8504AM			
IC603	8-759-044-10	IC CXD2562Q			
IC605	8-759-231-53	IC TA7805S			
IC608	8-759-604-90	IC M5F7907L			
IC921	8-759-296-74	IC AD712JR-REEL			
IC922	8-759-296-74	IC AD712JR-REEL			
IC951	8-759-604-86	IC M5F7807L			
IC952	8-759-231-53	IC TA7805S			
IC953	8-759-604-90	IC M5F7907L			
		< TRANSISTOR >			
Q401	8-729-900-53	TRANSISTOR DTC114EK			
Q402	8-729-900-53	TRANSISTOR DTC114EK			
Q551	8-729-035-25	TRANSISTOR 2SC3124			
Q921	8-729-232-69	TRANSISTOR 2SK208GR3			
Q922	8-729-141-58	TRANSISTOR 2SC2275A-QP			
Q931	8-729-232-69	TRANSISTOR 2SK208GR3			
Q932	8-729-141-10	TRANSISTOR 2SA985A-QP			
		< RESISTOR >			
R401	1-259-988-11	CARBON MELF	270	2%	1/8W
R402	1-259-988-11	CARBON MELF	270	2%	1/8W
R403	1-259-976-11	CARBON MELF	27	2%	1/8W
R404	1-259-976-11	CARBON MELF	27	2%	1/8W
R405	1-260-021-11	CARBON MELF	120K	2%	1/8W
R406	1-259-999-11	CARBON MELF	2.2K	2%	1/8W
R409	1-260-008-11	CARBON MELF	10K	2%	1/8W
R410	1-260-008-11	CARBON MELF	10K	2%	1/8W
R411	1-259-936-11	CARBON MELF	13K	2%	1/8W
R412	1-259-936-11	CARBON MELF	13K	2%	1/8W
R413	1-259-995-11	CARBON MELF	1K	2%	1/8W
R414	1-259-999-11	CARBON MELF	2.2K	2%	1/8W
R417	1-260-011-11	CARBON MELF	18K	2%	1/8W
R418	1-259-926-11	CARBON MELF	2K	2%	1/8W
R427	1-247-739-11	CARBON	100	5%	1/2W F
R429	1-260-012-11	CARBON MELF	22K	2%	1/8W
R430	1-259-995-11	CARBON MELF	1K	2%	1/8W
R432	1-260-023-11	CARBON MELF	180K	2%	1/8W
R434	1-259-987-11	CARBON MELF	220	2%	1/8W
R435	1-259-971-11	CARBON MELF	10	2%	1/8W
R437	1-259-971-11	CARBON MELF	10	2%	1/8W
R439	1-259-971-11	CARBON MELF	10	2%	1/8W
R440	1-259-971-11	CARBON MELF	10	2%	1/8W
R450	1-259-989-11	CARBON MELF	330	2%	1/8W
R470	1-259-975-11	CARBON MELF	22	2%	1/8W
R471	1-259-975-11	CARBON MELF	22	2%	1/8W
R472	1-259-981-11	CARBON MELF	68	2%	1/8W
R481	1-259-989-11	CARBON MELF	330	2%	1/8W
R482	1-259-989-11	CARBON MELF	330	2%	1/8W
R483	1-259-989-11	CARBON MELF	330	2%	1/8W

Ref. No.	Part No.	Description			Remark
R484	1-259-989-11	CARBON MELF	330	2%	1/8W
R486	1-259-980-11	CARBON MELF	56	2%	1/8W
R487	1-259-975-11	CARBON MELF	22	2%	1/8W
R488	1-259-983-11	CARBON MELF	100	2%	1/8W
R489	1-259-995-11	CARBON MELF	1K	2%	1/8W
R490	1-260-008-11	CARBON MELF	10K	2%	1/8W
R491	1-260-008-11	CARBON MELF	10K	2%	1/8W
R492	1-260-008-11	CARBON MELF	10K	2%	1/8W
R501	1-259-988-11	CARBON MELF	270	2%	1/8W
R502	1-259-988-11	CARBON MELF	270	2%	1/8W
R503	1-259-976-11	CARBON MELF	27	2%	1/8W
R504	1-259-976-11	CARBON MELF	27	2%	1/8W
R505	1-260-021-11	CARBON MELF	120K	2%	1/8W
R506	1-259-999-11	CARBON MELF	2.2K	2%	1/8W
R509	1-260-008-11	CARBON MELF	10K	2%	1/8W
R510	1-260-008-11	CARBON MELF	10K	2%	1/8W
R511	1-259-936-11	CARBON MELF	13K	2%	1/8W
R512	1-259-936-11	CARBON MELF	13K	2%	1/8W
R513	1-259-995-11	CARBON MELF	1K	2%	1/8W
R514	1-259-999-11	CARBON MELF	2.2K	2%	1/8W
R517	1-260-011-11	CARBON MELF	18K	2%	1/8W
R518	1-259-926-11	CARBON MELF	2K	2%	1/8W
R527	1-247-739-11	CARBON	100	5%	1/2W F
R529	1-260-012-11	CARBON MELF	22K	2%	1/8W
R530	1-259-995-11	CARBON MELF	1K	2%	1/8W
R532	1-260-023-11	CARBON MELF	180K	2%	1/8W
R534	1-259-987-11	CARBON MELF	220	2%	1/8W
R535	1-259-971-11	CARBON MELF	10	2%	1/8W
R537	1-259-971-11	CARBON MELF	10	2%	1/8W
R539	1-259-971-11	CARBON MELF	10	2%	1/8W
R540	1-259-971-11	CARBON MELF	10	2%	1/8W
R550	1-259-989-11	CARBON MELF	330	2%	1/8W
R551	1-260-004-11	CARBON MELF	4.7K	2%	1/8W
R552	1-259-997-11	CARBON MELF	1.5K	2%	1/8W
R553	1-259-984-11	CARBON MELF	120	2%	1/8W
R554	1-259-991-11	CARBON MELF	470	2%	1/8W
R555	1-259-995-11	CARBON MELF	1K	2%	1/8W
R581	1-259-989-11	CARBON MELF	330	2%	1/8W
R582	1-259-989-11	CARBON MELF	330	2%	1/8W
R583	1-259-989-11	CARBON MELF	330	2%	1/8W
R584	1-259-989-11	CARBON MELF	330	2%	1/8W
R601	1-259-995-11	CARBON MELF	1K	2%	1/8W
R602	1-259-995-11	CARBON MELF	1K	2%	1/8W
R603	1-259-995-11	CARBON MELF	1K	2%	1/8W
R607	1-249-415-11	CARBON	680	5%	1/4W F
R608	1-259-991-11	CARBON MELF	470	2%	1/8W
R609	1-259-991-11	CARBON MELF	470	2%	1/8W
R610	1-259-991-11	CARBON MELF	470	2%	1/8W
R611	1-259-991-11	CARBON MELF	470	2%	1/8W
⚠R901	1-212-875-00	FUSIBLE	56	5%	1/4W F
R921	1-259-979-11	CARBON MELF	47	2%	1/8W
R922	1-259-995-11	CARBON MELF	1K	2%	1/8W
R923	1-259-995-11	CARBON MELF	1K	2%	1/8W
R924	1-249-675-11	CARBON	1.2K	5%	1/2W
R925	1-249-681-11	CARBON	2.2K	5%	1/2W
R926	1-259-983-11	CARBON MELF	100	2%	1/8W
R931	1-259-979-11	CARBON MELF	47	2%	1/8W
R932	1-259-995-11	CARBON MELF	1K	2%	1/8W
R933	1-259-995-11	CARBON MELF	1K	2%	1/8W
R934	1-249-681-11	CARBON	2.2K	5%	1/2W
R935	1-249-675-11	CARBON	1.2K	5%	1/2W
R936	1-259-983-11	CARBON MELF	100	2%	1/8W
R937	1-260-004-11	CARBON MELF	4.7K	2%	1/8W
R938	1-260-004-11	CARBON MELF	4.7K	2%	1/8W

< RELAY >

RY402	1-755-061-11	RELAY
RY501	1-755-061-11	RELAY

< TRANSFORMER >

T401	1-429-371-11	TRANSFORMER, PULSE
T402	1-423-800-11	TRANSFORMER, PULSE

< CRYSTAL >

X551	1-577-686-11	VIBRATOR, CRYSTAL (45.1584 MHz)

****

*	1-659-246-11	B OUT BOARD
		**********

< CONNECTOR >

CN302	1-564-506-11	PLUG, CONNECTOR 3P
CN304	1-568-005-11	CONNECTOR, XLR TYPE 3P (DIGITAL OUT BALANCED)

****

	A-4673-222-A	BSL BOARD, COMPLETE
		**********

< CONNECTOR >

CN11	1-580-864-11	SOCKET, CONNECTOR (SMT) 10P

< HALL ELEMENT >

H11	8-719-987-62	DIODE LT140SZ
H12	8-719-987-62	DIODE LT140SZ

< RESISTOR >

R11	1-216-049-91	METAL GLAZE	1K	5%	1/10W
R12	1-216-049-91	METAL GLAZE	1K	5%	1/10W
R13	1-216-295-91	CONDUCTOR, CHIP(2012)			
R14	1-216-295-91	CONDUCTOR, CHIP(2012)			
R15	1-216-295-91	CONDUCTOR, CHIP(2012)			

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The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

DISPLAY | FLEXIBLE | KEY | OPTICAL | OUT SW

Ref. No.	Part No.	Description			Remark
*	A-4673-794-A	DISPLAY BOARD, COMPLETE			
		**********			
*	4-969-510-01	HOLDER (FL)			
*	4-971-241-01	CUSHION (FLT)			
		< CAPACITOR >			
C801	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C802	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C803	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C804	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C805	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C806	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C807	1-164-232-11	CERAMIC CHIP	0.01uF		50V
		< CONNECTOR >			
* CN805	1-564-500-11	PIN, CONNECTOR 7P			
		< FLUORESCENT INDICATOR >			
FL801	1-517-357-11	INDICATOR TUBE, FLUORESCENT			
		< IC >			
IC801	8-759-324-36	IC LC7570E			
IC802	8-759-324-36	IC LC7570E			
IC803	8-759-324-36	IC LC7570E			
IC804	8-749-923-80	IC GP1U90XB			
		< TRANSISTOR >			
Q801	8-729-901-01	TRANSISTOR DTC144EK			
Q802	8-729-901-06	TRANSISTOR DTA144EK			
		< RESISTOR >			
R801	1-216-631-11	METAL CHIP	150	0.5%	1/10W
R802	1-208-526-41	METAL GLAZE	47K	2%	1/10W
R803	1-216-699-11	METAL CHIP	100K	0.5%	1/10W
**********					
	1-653-918-11	FLEXIBLE BOARD			
		**********			
		< MOTOR >			
M21	X-4945-920-1	MOTOR ASSY (SLED)			
		< SWITCH >			
S21	1-571-958-11	SWITCH, PUSH (1 KEY)(LIMIT OUT)			
S22	1-571-958-11	SWITCH, PUSH (1 KEY)(LIMIT IN)			
**********					

Ref. No.	Part No.	Description			Remark
*	A-4673-795-A	KEY BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C954	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
		< DIODE >			
D871	8-719-303-02	DIODE SEL2510C-D (►)			
D872	8-719-301-53	DIODE SEL2810A-D (❚❚)			
		< TRANSISTOR >			
Q871	8-729-900-53	TRANSISTOR DTC114EK			
Q872	8-729-900-53	TRANSISTOR DTC114EK			
		< RESISTOR >			
R850	1-249-415-11	CARBON	680	5%	1/4W F
R851	1-259-995-11	CARBON MELF	1K	2%	1/8W
R852	1-259-997-11	CARBON MELF	1.5K	2%	1/8W
R886	1-249-415-11	CARBON	680	5%	1/4W F
R887	1-259-995-11	CARBON MELF	1K	2%	1/8W
R888	1-259-997-11	CARBON MELF	1.5K	2%	1/8W
R889	1-259-984-11	CARBON MELF	120	2%	1/8W
R890	1-259-988-11	CARBON MELF	270	2%	1/8W
		< SWITCH >			
S850	1-554-303-21	SWITCH, TACTILE (▷▷❙)			
S851	1-554-303-21	SWITCH, TACTILE (❙◁◁)			
S852	1-554-303-21	SWITCH, TACTILE (◀◀)			
S853	1-554-303-21	SWITCH, TACTILE (▶▶)			
S881	1-692-193-11	SWITCH, PUSH (1 KEY)(OPEN)			
S890	1-554-303-21	SWITCH, TACTILE (►)			
S891	1-554-303-21	SWITCH, TACTILE (❚❚)			
S892	1-554-303-21	SWITCH, TACTILE (■)			
**********					
*	1-659-244-11	OPTICAL BOARD			
		**********			
		< IC >			
IC406	8-749-921-12	IC GP1F32T (DIGITAL OUT OPTICAL)			
**********					
*	1-659-240-11	OUT SW BOARD			
		**********			
		< SWITCH >			
S301	1-571-083-31	SWITCH, SLIDE (DIGITAL OUT BALANCED)			
S302	1-571-083-31	SWITCH, SLIDE (DIGITAL OUT COAXIAL)			
S303	1-571-083-31	SWITCH, SLIDE (DIGITAL OUT OPTICAL)			
**********					

Ref. No.	Part No.	Description			Remark
*	A-4673-792-A	S POWER BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C953	1-130-467-00	MYLAR	470PF	5%	50V
C956	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C957	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C960	1-126-234-11	ELECT	2200uF	20%	16V
C961	1-126-234-11	ELECT	2200uF	20%	16V
C962	1-126-234-11	ELECT	2200uF	20%	16V
C966	1-126-234-11	ELECT	2200uF	20%	16V
C967	1-126-234-11	ELECT	2200uF	20%	16V
C968	1-126-234-11	ELECT	2200uF	20%	16V
C971	1-126-066-11	ELECT	470uF	20%	63V
C972	1-128-198-11	ELECT	22uF	20%	63V
C973	1-128-200-11	ELECT	47uF	20%	63V
C974	1-124-122-11	ELECT	100uF	20%	50V
C975	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C976	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C977	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
		< CONNECTOR >			
CN504	1-564-506-11	PLUG, CONNECTOR 3P			
CN511	1-691-770-11	PLUG (MICRO CONNECTOR) 8P			
		< DIODE >			
D951	8-719-975-85	DIODE ERB83-004			
D952	8-719-975-85	DIODE ERB83-004			
D953	8-719-975-85	DIODE ERB83-004			
D954	8-719-975-85	DIODE ERB83-004			
D971	8-719-053-18	DIODE 1SR154-400TE-25			
D972	8-719-053-18	DIODE 1SR154-400TE-25			
D973	8-719-053-18	DIODE 1SR154-400TE-25			
D974	8-719-053-18	DIODE 1SR154-400TE-25			
D975	8-719-150-67	DIODE RD18EB1T			
D976	8-719-111-61	DIODE RD3.9ES-T2B1			
		< TRANSISTOR >			
Q971	8-729-140-97	TRANSISTOR 2SB734-34			
		< RESISTOR >			
⚠R902	1-212-867-00	FUSIBLE	27	5%	1/4W F
R971	1-260-004-11	CARBON MELF	4.7K	2%	1/8W
R972	1-260-012-11	CARBON MELF	22K	2%	1/8W
R973	1-260-002-11	CARBON MELF	3.3K	2%	1/8W
R974	1-260-012-11	CARBON MELF	22K	2%	1/8W

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Ref. No.	Part No.	Description			Remark
*	A-4673-793-A	SERVO BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C102	1-126-052-11	ELECT	100uF	20%	16V
C103	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C104	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C105	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C106	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C107	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C108	1-163-145-00	CERAMIC CHIP	0.0015uF	5%	50V
C109	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C110	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C111	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C112	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C113	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C114	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C115	1-136-177-00	FILM	1uF	5%	50V
C116	1-163-129-00	CERAMIC CHIP	330PF	5%	50V
C117	1-163-129-00	CERAMIC CHIP	330PF	5%	50V
C131	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C132	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C133	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C134	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C135	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C136	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C137	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C138	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C139	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C140	1-110-501-11	CERAMIC CHIP	0.33uF	10%	16V
C141	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C142	1-163-127-00	CERAMIC CHIP	270PF	5%	50V
C143	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C161	1-163-145-00	CERAMIC CHIP	0.0015uF	5%	50V
C162	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C163	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C175	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C178	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C201	1-104-905-11	CAPACITOR	0.22F		5.5V
C202	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C203	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C204	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C600	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C601	1-126-052-11	ELECT	100uF	20%	16V
C604	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C606	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C607	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C695	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C696	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C697	1-126-046-11	ELECT	3.3uF	20%	50V

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

SERVO

Ref. No.	Part No.	Description	Remark
		< CONNECTOR >	
CN201	1-580-460-11	SOCKET, CONNECTOR 26P	
* CN207	1-506-503-11	PIN, CONNECTOR 9P	
* CN208	1-564-342-11	PIN, CONNECTOR 8P	
* CN209	1-564-337-00	PIN, CONNECTOR 3P	
CN210	1-568-794-11	SOCKET, CONNECTOR 12P	
* CN212	1-560-286-00	CONNECTOR PIN 2P (STOPPER)	
* CN213	1-560-286-00	CONNECTOR PIN 2P (STOPPER)	
* CN215	1-564-336-00	PIN, CONNECTOR 2P	
CN216	1-564-321-00	PIN, CONNECTOR 2P	
CN255	1-750-755-11	CONNECTOR, FFC/FPC 23P	
* CN513	1-564-509-11	PLUG, CONNECTOR 6P	
* CN514	1-564-509-11	PLUG, CONNECTOR 6P	
CN515	1-564-506-11	PLUG, CONNECTOR 3P	
		< DIODE >	
D201	8-719-801-78	DIODE 1SS184	
D601	8-719-801-78	DIODE 1SS184	
D602	8-719-801-78	DIODE 1SS184	
		< IC >	
IC101	8-752-361-94	IC CXD2515AQ	
IC102	8-759-071-79	IC BA6297AFP	
IC104	8-759-071-79	IC BA6297AFP	
IC105	8-759-071-79	IC BA6297AFP	
IC201	8-752-864-47	IC CXP84124-043Q	
IC202	8-759-336-84	IC LC3564SM-10	
IC203	8-759-504-12	IC X24C01S	
IC602	8-759-233-64	IC TC74HCU04AF	
IC691	8-759-636-16	IC M51957AL	
		< JUMPER RESISTOR >	
JW600	1-211-952-11	METAL GLAZE 10 2%	1/10W
JW601	1-216-121-91	METAL GLAZE 1M 5%	1/10W
		< TRANSISTOR >	
Q101	8-729-901-06	TRANSISTOR DTA144EK	
Q102	8-729-901-01	TRANSISTOR DTC144EK	
Q103	8-729-901-06	TRANSISTOR DTA144EK	
Q104	8-729-901-01	TRANSISTOR DTC144EK	
Q601	8-729-207-67	TRANSISTOR RN2401	
		< RESISTOR >	
R101	1-208-810-11	METAL GLAZE 15K 2%	1/10W
R102	1-216-699-11	METAL CHIP 100K 0.5%	1/10W
R103	1-208-810-11	METAL GLAZE 15K 2%	1/10W
R104	1-216-627-11	METAL CHIP 100 0.5%	1/10W
R105	1-208-449-41	METAL GLAZE 3.3K 2%	1/10W
R106	1-208-449-41	METAL GLAZE 3.3K 2%	1/10W
R107	1-208-462-41	METAL GLAZE 10K 2%	1/10W
R108	1-216-121-91	METAL GLAZE 1M 5%	1/10W
R109	1-218-760-11	METAL GLAZE 220K 2%	1/10W
R110	1-208-462-41	METAL GLAZE 10K 2%	1/10W
R111	1-208-774-11	METAL GLAZE 470 2%	1/10W
R112	1-208-774-11	METAL GLAZE 470 2%	1/10W
R113	1-208-774-11	METAL GLAZE 470 2%	1/10W
R114	1-208-425-41	METAL GLAZE 330 2%	1/10W
R115	1-208-462-41	METAL GLAZE 10K 2%	1/10W
R116	1-208-437-41	METAL GLAZE 1K 2%	1/10W
R117	1-208-462-41	METAL GLAZE 10K 2%	1/10W
R118	1-216-699-11	METAL CHIP 100K 0.5%	1/10W
R119	1-216-687-11	METAL CHIP 33K 0.5%	1/10W
R120	1-208-345-11	METAL GLAZE 15 2%	1/10W
R121	1-208-345-11	METAL GLAZE 15 2%	1/10W
R131	1-216-689-11	METAL CHIP 39K 0.5%	1/10W
R132	1-216-689-11	METAL CHIP 39K 0.5%	1/10W
R133	1-216-685-11	METAL CHIP 27K 0.5%	1/10W
R134	1-216-685-11	METAL CHIP 27K 0.5%	1/10W
R135	1-216-687-11	METAL CHIP 33K 0.5%	1/10W
R136	1-216-687-11	METAL CHIP 33K 0.5%	1/10W
R137	1-216-689-11	METAL CHIP 39K 0.5%	1/10W
R138	1-216-689-11	METAL CHIP 39K 0.5%	1/10W
R139	1-216-685-11	METAL CHIP 27K 0.5%	1/10W
R140	1-216-685-11	METAL CHIP 27K 0.5%	1/10W
R141	1-216-687-11	METAL CHIP 33K 0.5%	1/10W
R142	1-216-687-11	METAL CHIP 33K 0.5%	1/10W
R143	1-216-695-11	METAL CHIP 68K 0.5%	1/10W
R144	1-216-695-11	METAL CHIP 68K 0.5%	1/10W
R145	1-216-687-11	METAL CHIP 33K 0.5%	1/10W
R146	1-216-687-11	METAL CHIP 33K 0.5%	1/10W
R147	1-211-952-11	METAL GLAZE 10 2%	1/10W
R148	1-208-462-41	METAL GLAZE 10K 2%	1/10W
R149	1-208-462-41	METAL GLAZE 10K 2%	1/10W
R151	1-216-699-11	METAL CHIP 100K 0.5%	1/10W
R155	1-216-699-11	METAL CHIP 100K 0.5%	1/10W
R161	1-216-677-11	METAL CHIP 12K 0.5%	1/10W
R162	1-208-824-11	METAL GLAZE 56K 2%	1/10W
R163	1-216-695-11	METAL CHIP 68K 0.5%	1/10W
R164	1-216-695-11	METAL CHIP 68K 0.5%	1/10W
R165	1-216-695-11	METAL CHIP 68K 0.5%	1/10W
R166	1-216-699-11	METAL CHIP 100K 0.5%	1/10W
R167	1-208-453-41	METAL GLAZE 4.7K 2%	1/10W
R168	1-216-699-11	METAL CHIP 100K 0.5%	1/10W
R172	1-218-760-11	METAL GLAZE 220K 2%	1/10W
R173	1-208-445-41	METAL GLAZE 2.2K 2%	1/10W
R174	1-208-445-41	METAL GLAZE 2.2K 2%	1/10W
R175	1-218-760-11	METAL GLAZE 220K 2%	1/10W
R180	1-218-760-11	METAL GLAZE 220K 2%	1/10W
R181	1-208-445-41	METAL GLAZE 2.2K 2%	1/10W
R182	1-208-445-41	METAL GLAZE 2.2K 2%	1/10W
R183	1-218-760-11	METAL GLAZE 220K 2%	1/10W
R201	1-216-615-11	METAL CHIP 33 0.5%	1/10W
R202	1-208-462-41	METAL GLAZE 10K 2%	1/10W

Ref. No.	Part No.	Description			Remark
R203	1-216-671-11	METAL CHIP	6.8K	0.5%	1/10W
R204	1-216-671-11	METAL CHIP	6.8K	0.5%	1/10W
R205	1-216-671-11	METAL CHIP	6.8K	0.5%	1/10W
R206	1-216-671-11	METAL CHIP	6.8K	0.5%	1/10W
R207	1-216-671-11	METAL CHIP	6.8K	0.5%	1/10W
R208	1-216-671-11	METAL CHIP	6.8K	0.5%	1/10W
R209	1-216-671-11	METAL CHIP	6.8K	0.5%	1/10W
R210	1-208-462-41	METAL GLAZE	10K	2%	1/10W
R211	1-211-952-11	METAL GLAZE	10	2%	1/10W
R213	1-208-462-41	METAL GLAZE	10K	2%	1/10W
R214	1-216-699-11	METAL CHIP	100K	0.5%	1/10W
R215	1-208-462-41	METAL GLAZE	10K	2%	1/10W
R216	1-211-952-11	METAL GLAZE	10	2%	1/10W
R604	1-208-437-41	METAL GLAZE	1K	2%	1/10W
R605	1-208-462-41	METAL GLAZE	10K	2%	1/10W
R606	1-216-647-11	METAL CHIP	680	0.5%	1/10W
R613	1-249-415-11	CARBON	680	5%	1/4W F
R614	1-259-989-11	CARBON MELF	330	2%	1/8W
R615	1-249-427-11	CARBON	6.8K	5%	1/4W F
R616	1-216-121-91	METAL GLAZE	1M	5%	1/10W
R691	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R692	1-208-810-11	METAL GLAZE	15K	2%	1/10W
R693	1-208-449-41	METAL GLAZE	3.3K	2%	1/10W
		< VIBRATOR >			
X201	1-577-377-11	VIBRATOR, CERAMIC (10MHz)			
X601	1-577-685-11	FILTER, CRYSTAL (16MHz)			

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*	1-659-245-11	U OUT BOARD	
		**********	
		< CONNECTOR >	
CN303	1-564-506-11	PLUG, CONNECTOR 3P	
		< JACK >	
J301	1-764-413-11	JACK, PIN (DIGITAL OUT COAXIAL)	

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Ref. No.	Part No.	Description	Remark
		MISCELLANEOUS	
		**********	
63	1-776-183-11	WIRE (FLAT TYPE)	
64	1-776-182-11	WIRE (FLAT TYPE)	
⚠805	8-848-466-11	OPTICAL PICK-UP BLOCK KSS-274A/J-N	
819	1-653-918-11	FLEXIBLE BOARD	
FL801	1-517-357-11	INDICATOR TUBE, FLUORESCENT	
IC951	8-759-604-86	IC M5F7807L	
IC953	8-759-604-90	IC M5F7907L	
M21	X-4945-920-1	MOTOR ASSY (SLED)	
S21	1-571-958-11	SWITCH, PUSH (1 KEY)(LIMIT OUT)	
S22	1-571-958-11	SWITCH, PUSH (1 KEY)(LIMIT IN)	
⚠T1	1-429-750-11	TRANSFORMER, POWER	

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		ACCESSORIES & PACKING MATERIALS	
		**********	
	1-473-836-11	REMOTE COMMANDER (RM-DX5000N)	
⚠	1-551-631-22	CORD, POWER	
	1-558-271-11	CORD, CONNECTION (AUDIO 108cm)	
	3-810-423-11	MANUAL, INSTRUCTION (ENGLISH, FRENCH, GERMAN, SPANISH)	
	3-810-423-21	MANUAL, INSTRUCTION (DUTCH, SWEDISH, ITALIAN, PORTUGUESE)	
	4-979-043-01	PULLEY, DISK	
*	4-979-128-01	CUSHION (REAR)	
*	4-979-397-01	CUSHION (FRONT)	
*	4-983-819-01	INDIVIDUAL CARTON	
	4-986-649-01	COVER, BATTERY (for RM-DX5000N)	

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HARDWARE LIST
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#1	7-682-547-09	SCREW +B 3X6
#2	7-682-548-09	SCREW +B 3X8
#3	7-621-773-95	SCREW +B 2.6X6
#4	7-685-871-01	SCREW +BVTT 3X6 (S)
#5	7-685-659-79	SCREW +BVTP 4X8 TYPE2 IT-3
#6	7-621-259-39	SCREW +P 2.6X5
#7	7-685-646-79	SCREW, TAPPING
#8	7-685-246-14	SCREW +KTP 3X8 TYPE2 NON-SLIT
#9	7-685-534-19	SCREW +BTP 2.6X8 TYPE2 N-S
#10	7-627-852-07	SCREW, PRECISION +P 1.7X2.5
#11	7-627-852-58	SCREW, PRECISION +P 1.7X5 TYPE3
#12	7-685-548-21	SCREW +BTP 3X12 TYPE2 SLIT
#13	7-685-872-09	SCREW +BVTT 3X8 (S)
#14	7-685-871-09	SCREW +BVTT 3X6 (S)
#15	7-682-560-04	SCREW +BVTT 4X6 (S)

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

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